



Non-fiction

Group 1

Gunpowder Power

Carmel Elementary School, Shapiro, Charlie – 6

I chose to write about gunpowder because I am interested in space rockets and I want to become an astronaut. I learned when researching about gunpowder that rockets evolved from simple gunpowder, and wanted to learn more. I also like studying Mandarin and learning about China.

Gunpowder was invented in the 9th Century by Chinese monks who were looking for a recipe for something that people could drink or eat in order to live longer or even to live forever. But instead of discovering a formula for helping people to live longer, the monks discovered gunpowder which had the opposite effect. It is very interesting that they actually invented something that was used to hurt or kill people instead of helping people to live longer.

I learned in my research that the use of gunpowder was first developed as a weapon by the Chinese military during the Song dynasty. The Song dynasty soldiers used gunpowder in explosive weapons such as fire arrows, bombs and even a kind of flamethrower! Gunpowder was such a military advantage for the Song military that they tried to keep it a secret from their enemies. The Song dynasty government even banned the sale of saltpeter to foreigners to try to stop China's military enemies from using gunpowder, but the technology was spread by the Mongols who used it to conquer other parts of the world.

People mostly know gunpowder is used in guns, but it is also used in other things like fireworks and mining. It is very interesting to me that gunpowder is used for something deadly (like guns) and can be destructive (such as explosives when used in mining), but also to make beautiful fireworks.

What other uses are there for gunpowder and are there some uses that have not been invented yet? The history of gunpowder should encourage people to keep inventing things because you never know what will be made out of it.

Jaozi – The First Paper Money

Carmel Elementary School, Turner, Adi – 8

Before paper money existed, people used items such as rocks and seashells to trade for houses and horses. The earliest currency was born in ancient Mesopotamia 5000 years ago, and since then, currencies have evolved from commodity money to metallic coinage and paper money. Nowadays, digitized currencies run the global economy, partaking in billions of transactions every minute. However, the history of money is far more complex.

The foundation for the development of paper money was laid by two inventions: the paper and ink technologies, both of which are part of the ‘big 4’ Chinese historical inventions. The paper was invented during the Han dynasty around 100 BCE. Beforehand, materials such as bamboo strips, silk, and animal skin were used as surfaces for writing, but they were relatively expensive, not accessible, and not reliable. The ink technology was developed more or less simultaneously with the paper. The traditional ink, mostly known as ‘carbon ink,’ was made by grinding inkstick (a mixture of soot from burned pine wood and glue) on an inkstone with water. These two innovative technologies allowed the invention of the first paper money, the ‘Jiaozi,’ and opened the door to a new era of global trade.

Jiaozi was the first paper note born in the Northern Song Dynasty in Chengdu, the Sichuan district capital of China, and it was first issued on April 1st, 1024. Before the Jiaozi, the traders had to use expensive metal coinage that suffered a few significant disadvantages. Firstly, the metal coins were hefty, and therefore difficult to carry around, resulting in divisibility and inefficiency issues. Moreover, they were easy to counterfeit and fast to wear and tear. The Jiaozi was revolutionary, solving all of the prominent issues of the metal coinage system. The portability of money increased due to the paper bills being lightweight and easy to carry. Durability also improved with the outstanding quality of the Chinese paper, due to the evolving paper technology. Divisibility stopped being an issue, and counterfeiting became much more difficult.

The impact of the Jiaozi was enormous, not only on the Chinese economy but on the whole world. Local and foreign traders distributed this new form of money all over the world, allowing improvements in financial intermediation, enabling merchants to conduct business more efficiently, and encouraging economic growth. Today, Jiaozi is displayed in the Chinese Finance Museum of Chengdu. It is an incredible milestone in global finance and is the first of many paper notes developed and printed over the years, which still serve as a crucial part of our daily lives.

The Chinese invention of Jiaozi is an excellent example of using leading technologies to invent a “game changer” in globalization. By improving trade efficiency, this Chinese revolutionary invention helped to make the world smaller, better, and more united than ever.

New Tales of China's Inventions

ESF Beacon Hill School, Wu, Ava – 7

Do you have an idol? Well, my dad does. That was a famous statesman, strategist, and engineer that I know in ancient China called Zhu Ge Liang. He was born in the year 181 and died in the year 234. He lived in the Three–Kingdoms period which was quite chaotic, and invented a lot of things like Mantou, landmines, Kongming Lantern, and repeating crossbows.

To my surprise, some inventions are still in use, for example, Kongming Lanterns. Although the others are not, outdated inventions give us ideas to upgrade them into newer and better ones.

One of his best inventions is the wooden ox and flowing horse (or Mu Niu Liu Ma in Chinese), which he created at 49 years old. He made it because his country went to war and the army was carrying heavy rice on the move. After he made a wooden ox and flowing horse, the army could just put the rice in its body which was actually an empty container so that the self–walking carrier could save people's energy!

Almost a month ago my dad bought a toy of the wooden ox and flowing horse for my brother and me. It was a pack of pieces, and we had to connect the body and the legs with bolts and nuts. Amazingly this hand–made animal walks with the right front leg and the left back leg stepping out at the same time, and so are the other two legs moving – It worked perfectly! It is of a baby puppy's size and my lower arm's length. All parts including its head and horns are wooden so it is light brown. As long as you softly pull the long rope in its nose, it starts to walk easily, unlike a box container.

It has no facial expression but I can still imagine that it is a happy ox, or a curious one.

Nowadays, people replace it with bags, wheel suitcases, and even newer driverless cars. In case you don't know, a driverless car can drive by itself when you are seated inside. You don't have to worry if it bumps into other cars because there are a lot of sensors all around it. There is also a map navigator inside the car so that it knows where to go as soon as we type in the destination. Unlike Mu Niu Liu Ma, there is a supercomputer inside the car that functions like the brain of a human. It can understand and respond to all the information from many sensors at the same time. I'm excited not only because it is cool but also because it can help people. Even blind people can have their cars in the future. And I don't need a driver's license anymore.

Recently when my family took a plane to South Korea for a skiing holiday, my uncle gave me a ride on his new Tesla. I was really surprised when I saw his hands off the steering wheel but the car did not bump into anything. The steering wheel was slowly and slightly turning by itself as if someone I couldn't see was steering it instead of my uncle. Sitting in the car, my family felt they were on the road to the future.

I feel curious about what Zhu Ge Liang would invent if he were here, but I'm sure that he would at least be as inspired as I am now by so many new inventions in the modern world.

What Do You Think?

German Swiss International School, Luan, Xavier – 7

Chapter 1: Introduction

Many kids want to be a scientist to calculate and to make their own inventions. I would think you will become one when you grow up. But I guess your inventions might be like a train, bottle or boat. I would like to invent something like a robot friend or magical medicine. Oh, and one more fun fact! Did you know that the wires we use for electronic devices, like the ones that connect your computer or TV, were inspired by Star Wars?

After Many centuries, China might even invent a machine that can help your parents with chores. If I'm wrong with what you might invent, what would you invent? Even if you don't want to be a scientist, it's okay too. Not being a scientist, you can also invent! You can use your imagination and create amazing things with paper, toys, or anything you can think of. And who knows, maybe one day you'll come up with an invention that changes the world!

Chapter 2: Old inventions

China has invented many things including paper making, moveable type printing, gunpowder, compass, mechanical clock, silk, umbrella, alcohol, acupuncture, tea production, iron smelting, porcelain, earthquake detector, racket, bronze, kite, seed drill, raw crop farming, toothbrush and paper money, and much more!

Chapter 3: Future Inventions

Now that we've learned about all the amazing things that China has invented, let's dive into the exciting world of future inventions! There are so many cool ideas and possibilities waiting for us. Are you ready?

Flying Cars: Imagine zooming through the sky in a car! In the future, we might have cars that can fly. How awesome would it be to soar above the clouds and go on adventures in the air?

Talking Animals: Wouldn't it be amazing if we could talk to animals and understand what they're saying? In the future, we might have devices that can translate animal language, so we can have conversations with our furry and feathery friends.

Magic Food Machines: Hungry? In the future, we might have machines that can instantly make any food you want. Imagine pressing a button and getting a delicious pizza or a yummy ice cream cone. It would be like having a magical kitchen!

Chapter 4: Dream big

Isn't it exciting to think about all the incredible inventions that might be waiting for us in the future? Remember, you don't have to be a scientist to invent things. So, keep dreaming, keep imagining, and always believe in the power of your ideas. The future is full of possibilities, and you can be a part of making it even more amazing. Have fun exploring and inventing, my friend!

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lau, Ho Yeung Avery – 9

The Invention of Gunpowder in China Gunpowder is one of the four greatest inventions of ancient China, alongside the compass, papermaking, and printing. This impactful innovation was developed by Chinese alchemists in the 9th century. It's accidental discovery shaped the course of human history. In this report we are going to talk about the origins and impacts of this powerful invention. In China, gunpowder is referred to as huoyao, translating to "flaming medicine".

Unlike papermaking and printing, the discovery of gunpowder was serendipitous. Alchemists, in their quest to concoct an elixir of immortality, stumbled upon a mixture of sulfur, saltpeter, and charcoal that produced explosive reactions. This new substance was initially used for creating fireworks to celebrate festivals and other significant events.

By the end of the Tang Dynasty, gunpowder began to see military applications. The Song and Yuan Dynasties' frequent wars accelerated the development of cannons and fire—arrows, launched from bamboo tubes. By the 12th and 13th centuries, gunpowder technology had spread to Arab countries, Greece, and other European regions, eventually reaching every corner of the globe. This invention profoundly influenced Chinese civilization and had farreaching global impacts.

The effects of gunpowder invention can be observed from ancient times to the present day. Gunpowder revolutionized warfare. It led to the creation of powerful new weapons such as cannons, muskets, and other firearms. Consequently, military strategies evolved, and the effectiveness of castles and fortresses diminished. Gunpowder technology spread from China to the rest of the world via trade routes like the Silk Road, fostering cultural exchange and economic growth. The production and trade of gunpowder and firearms became pivotal industries, stimulating global economies. In contemporary times, gunpowder's impact is still significant, but its applications have diversified. Modern firearms and explosives, rooted in gunpowder technology, have reshaped the conduct of wars and influenced military strategies.

The widespread use of guns has affected the outcomes of conflicts and shaped the world's political landscape. Apart from warfare, gunpowder is used in several essential areas. It's employed in mining, construction, and the creation of fireworks and special effects. Controlled explosions using gunpowder aid in mining operations and building demolitions, while adding excitement to celebrations and cultural events.

While gunpowder has many uses, the availability and misuse of firearms pose significant challenges. It's crucial to establish regulations and laws to ensure public safety. Debates surrounding gun ownership rights and preventing illegal trade constitute a global issue. Gunpowder's influence on the world throughout history is significant. It has revolutionized warfare, shaped technology, and impacted global trade. Today, it continues to influence military strategies, contribute to various industries, and raise safety concerns.

As the saying goes, "Knowledge is like gunpowder; it can be used to build or destroy, depending on how it is wielded." Understanding the history and current impact of gunpowder helps appreciate its importance and the dialogues surrounding its use in our modern world.

China's Future Inventions

Kowloon Tong School (Primary Section), Chan, Justin – 10

Do you know the four great inventions of China? They are papermaking, printing, gunpowder and compass.

The first invention is papermaking. During the Han dynasty, paper was made of plants, fishing nets and old pieces of cloth. Later, they were used as toilet paper, teabags as well as paper currency. The second invention is printing. It was first done by using wood. People carved Chinese characters on wood. The third one is gunpowder, which was used for fireworks for celebration. In battles, gunpowder was used as bombs and explosions. Now, gunpowder is also used in firearms. The last is the compass. Originally called Sinan, it used the sun, moon, and the stars to determine directions. Later, people began using a needle, with one end pointing north and the other pointing south to tell directions.

Nowadays people use apps such as Wechat, Alipay or even electric cars. One future invention will be robots which can communicate with us. They will act like humans, write poems, use mobile phones, play on computer tablets, read books, drink water and play sports. They also look like us having nails and teeth.

The second future invention will be flying electric cars. They will have the ability to expand or shrink, and we can give them directions to go to specific locations or destinations. The flying electric cars do not require manual driving and can take us to our destinations. They can also travel underwater.

The four great inventions of China have been passed down and improved over the years with technological advancement. In the foreseeable future, there is no doubt that human-like robots and flying electric cars will be possible inventions as well.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Chung, Cheuk Hin – 9

One day, I woke up with a strange robot beside my bed, it was very small. It had small cute eyes. It had a speaker that could talk to you. It had a flat body. It also had six wheels that automatically drove by itself, so you didn't need to carry.

It actually all started like this. Yesterday night a scientist sneaked into everybody's houses and put a robot in everyone's bedroom. The scientist said "Giving robots to everyone will make their lives very convenient, now when people go out to do something, most of them will bring their intelligent robots out. For example: We don't need cashiers now, since the robots can help us count how much we need, then we can put our credit cards on the robot for just two seconds, then the robots will just use WI-FI to send the money to the company.

You can also use the robot to remind you and tell you what you need to bring things, after the robot reminds you and tells you what you need to bring for the day, you can open the back of the robot and put your small things in it. But, in case something doesn't fit in there, you can use the special gear to clip your bigger things on it. It also has a lock. You must enter your passcode to open the back of your robot, and nobody will even know what your passcode is, because it is your fingerprint! If you ask your robot where you could go, if you want to go to a place, the robot can automatically tell you what to do.

The best thing is, this robot is very Eco-friendly, because it uses a solar powered battery, so when the weather is sunny or hot, it is very suitable for taking your robot outside!

It also has a water-sucking function. If there is very bad weather today, and even your house is flooding, you can activate the water-sucking mode just by pulling out two tiny pipes from the robot. If the robot detects just 0.1% of water, it'll suck it.

It's A.I. (Artificial Intelligence) so it can literally detect how you feel, if you feel bored, it'll play with you, if you feel sad, it'll tell you away to feel better, if you feel angry, it'll tell you ways to calm down. Doesn't that make you feel better?

At last, it knows how to come back to your house automatically, so you can tell it to do something outside while you rest or play.

Would you want a smart robot? I would love to have one!

A “FAB” Invention

Kowloon Tong School (Primary Section), Law, Siu Wai – 10

Our world is in danger. We need to protect it. The world population has reached 80 billion by the end of 2023. Most of us are using cars every day. Traditional cars produce exhaust gas which pollutes the air. Air pollution causes a lot of harmful effects on human beings, such as dizziness, fatigue and chronic respiratory diseases. So we should try our best to keep the world clean.

In China, we have 1.4 billion people and 426 million cars, air pollution is also a key problem to solve. Luckily, many people in China have a habit of using bicycles when they go out. In 2023, there are about 200 million bicycles in China. Moreover, more and more people started using new energy cars like electric cars. But these are not enough!

A new device is going to be invented to help solve air pollution. It is called “FAB” (Fresh Air Bike). FAB is a bike which can make air freshener on the road. On the bike, there is a small filter which is fuelled by the resistance of the bike (kinetic energy) and energy from the solar panels. When you are riding the FAB on the road, the wheels will produce energy for the filter. Then the filter will take the polluted air on the road in and change it into fresh air. The filter will keep working all the way. When more and more people use FAB, the air will be fresher, with less pollution and then, fewer illnesses.

The FAB filter uses clean energy: kinetic energy and solar energy. Clean energy does not cause pollution and harmful effects on nature. The material of the filter is all from recycled cans and plastic.

In addition, we can do exercise when we are riding on FAB. Everybody knows, riding a bike is good aerobic exercise. Aerobic exercise brings oxygen to our bodies, which can keep our bodies fit and healthy. When more people are healthier, they will have fewer illnesses. In this case, there will be less burden on national medical service. Therefore, we can spend the money on other sectors like housing, social welfare and education. Then everybody will be happier!

If the air is fresher, more plants will grow and more oxygen will be produced. Oxygen is very important for all the lives on Earth because we all need oxygen to survive. To save the Earth, we should develop FAB as soon as possible. I hope that we can have FAB, and a more beautiful and healthy Earth very soon.

My Health Buddy – The Smart AI Health Friend

Kowloon Tong School (Primary Section), Yau, Ka Man – 9

In the big world of super cool things like smart robots, super-fast trains, and apps like WeChat and Alipay in China, something really awesome is coming – our new friend, the AI Health Friend!

Imagine having a friend who's like a superhero with a super-smart brain, knowing a lot about keeping us healthy and always ready to help with our questions. What makes this friend extra cool is that it's connected to apps like WeChat. It's just like chatting with friends on WeChat – we can talk to our health friend there and learn cool things about our heart and sleep, like a detective always watching out for our health.

This AI Health Friend is also a buddy who helps us stay healthy, like a coach. It mixes the power of smart tech and super-fast trains. It learns about our bodies, our health history, and how we live. With all this special info, it gives us advice through WeChat that's just right for us. It tells us about the foods that are good for our bodies, reminds us to take medicine, and even finds possible health problems before they become big issues – just like having a super-smart doctor always with us. It sends us friendly reminders on WeChat all the time.

When we visit the doctor and need to pay for it, it's super easy! We can use Alipay, which is like magic money on our phones. All these super cool technologies together make our health experiences easier, more special, and really fast. It's all about making sure we stay happy and healthy with the help of our awesome AI Health Friend!

Robotic Chair

Maryknoll Convent School (Primary Section), Lee, Zoe – 6

This Robotic Chair is made by Zoe.

Zoe is a Hong Kong Scientist in the future. She likes to do a lot of things, like playing with friends, skateboarding and swimming. She enjoys inventing something that is not available now. She also likes to make something from recycled materials.

The invention that Zoe makes can help and make people's life easier, especially for the disabled, and those people that work very hard.

This Robotic Chair has many functions such as move, talk, sing, massage and transform. It is very smart, as smart as a computer.

When you are busy but hungry, it will feed you.

It can even help the disabled to walk and do many household chores. It can clean the windows with its laser beam eyes.

This Robotic Chair can change into a telescope. You can use it to see anything in the space. It can be your companion to share secrets. You can also put the trash into the head to recycle into whatever you want, but if you make it angry, it will be invisible till the next day.

Actually, it can do more than you can imagine. Do you want to have one?

Embracing Modern Innovations: A Journey of Gratitude and Inspiration

St. Joseph's Primary School, Chan, Ho Shing Brandon – 8

On a rainy September day, I rushed to catch the bus with my mom, eager to head back home. As we approached the bus, an old woman was struggling to count her coins. She just caused a delay in boarding. My mom urged me to assist her with my Octopus card, while she used her smartphone to pay for our fares. With a swift beep, the payment was completed smoothly, and the old lady expressed her gratitude for our help.

I wondered why people still rely on coins for payment when we have such convenient methods available. I took the opportunity to introduce the old lady to the wonders of QR code payment, she eagerly learned the new way within that short 10-minute trip. It warmed my heart to share my knowledge and help her adapt to modern technology.

As I dream of becoming a scientist when I grow up, I find joy in educating others about new technologies. Apart from e-payment, I seek to share some remarkable inventions from China that have significantly improved our lives.

China now stands at the forefront of modern innovation and technology. The country continues to amaze the world with its groundbreaking inventions, such as online shopping, e-payment, high-speed trains, and shared vehicles, which have modernized our shopping, travel, and payment experiences. Let's dive in!

Have you ever left your wallet at home? With e-payment, we can pay by using their smartphones. A simple scan or tap allows for transactions. There is no need to carry cash or deal with dirty coins. Who wouldn't appreciate the convenience of e-payment?

Online shopping, another fantastic invention from China, has transformed the way we shop. With just a few steps on our phones, we can order anything and have it delivered to our doorsteps. It's like having a magical store where everything is at our fingertips! I will never forget my dad ordered me a tailor-made Spider-Man birthday cake on the internet. That's an amazing Spider-man cake!

China's renowned high-speed trains have redefined long-distance travel. These trains can reach incredible speeds, making journeys swift and enjoyable. I took the high-speed train many times for family trips. Traveling at speeds of up to 300km per hour, these trains offer comfort and contribute to the reduction of air pollution.

The fourth remarkable invention for me to share is shared vehicles. It enables people to rent cars and bikes for short trips. It also promotes eco-friendly lifestyle and relieves the traffic congestion. My dad can also save a lot of time to find the parking lots.

These incredible inventions have made my life more efficient and convenient. They have inspired me to think the new inventions I could contribute in the future. Perhaps I'll invent something that will positively impact people's lives, just like these amazing innovations from China!

Let's express gratitude for these inventions and remain open to new ideas. Together, we can create a more innovative and promising future!

Hua Tuo the Inventor

St. Joseph's Primary School, Chow, John-Henry – 7

A Chinese governor had some sashimi. Not long after, he developed an illness. The governor suffered chest stuffiness and had lost his appetite. He then sought help from a physician. The physician had the governor drink two pints of decoction. Later the governor vomited up three pints of parasites.

Once upon a time, there was a wise Chinese physician named Hua Tuo. He was a master of acupuncture and surgery, and he had a special talent for making his patients feel better. Hua Tuo was also very creative, and he loved to invent new things that could help people.

One day, Hua Tuo was walking in the forest when he saw a group of monkeys playing. He noticed that they were very agile and flexible, and he wondered if he could use their movements to help people who were sick. So he invented a new kind of exercise called the “frolics of the five animals.” It involved imitating the movements of a tiger, deer, bear, monkey, and bird, and it was a lot of fun to do. People who did the frolics of the five animals felt more energetic and healthy.

Hua Tuo was also interested in anaesthesia, which is a way of making people feel less pain during surgery. He discovered that a mixture of hemp and wine could be used to make patients fall asleep, and he called it “mafeisan.” This was a great invention because it made surgery less painful and more successful.

Another invention of Hua Tuo was the “anaesthetic ball.” This was a ball filled with mafeisan that patients could inhale to fall asleep. It was a very simple and effective way to administer anaesthesia.

Hua Tuo's inventions were very important because they helped people feel better and live longer. He was a great physician and a great inventor, and his legacy lives on today.

Face Recognition

St. Joseph's Primary School, Hon, Hei Ching Horace – 8

Face Recognition is a popular technology. It provides a secure way to unlock devices and protect our information. Face Recognition has transformed the way and interact with our life.

At first, I think it is convenient because Face Recognition provides an easy way to unlock electronic products and even make payments. So that users just look at the devices and it can scan their face. Secondly, it's more convenient for elderly than using fingerprint. It creates detail map so as to uniqueness.

When I use Face Recognition, something bad happened on me. It makes me feel upset.

So here are three things that I think is bad.

If someone's face has a big change, it cannot be recognized. Also, Face Recognition is easily to be hacked or replaced by a simply photo, so it is not high secure enough.

Lack of privacy, family members or best friends may use relatives to unlock and access personal information.

Face Recognition is wholly dependence on the internet data. If there is no internet, the only personal device to be accessed, other functions will be limited and useless. And also, some poor people cannot have this kind of devices because devices are too expensive.

China has improved the face recognition technology to capture face by a 3D camera in order to enhance accuracy. For example, one of the largest restaurant chain KFC, have been combined 3D camera and liveness detection, "Smile to Pay" can prevent others to use photos as source. Nowadays, Smile to Pay is widely used in China, not only restaurants but public transport and physical stores as a new digital- payment method in 300 cities.

Lastly, I think Face Recognition can do better especially to have more security management on the database. It is really convenient, high technology so as to improve the way of life. Face Recognition has changed to a better and nicer life. At the end, I am very happy to share my opinions, hopefully it's useful to you all.

China's Legendary Duos

St. Joseph's Primary School, Hui, Yiu Lang Ethan – 7

Two inventions that China may create in the future are flying cars and frost guns.

I believe China can create flying cars because China is already a pioneer in manufacturing electric cars. Flying cars can support fast transportation because there should be less traffic jam in the sky. Flying cars can fly up and down to avoid clashing other cars. There will neither be buildings nor people blocking their routes. With the different colours of flying cars in the sky, it will look like candies flying around!

The second invention that China may invent in the future is frost guns. Frost guns can solve global warming because frost guns can make snow and ice in a short time. This is particularly useful for polar bears and Arctic foxes suffering from global warming. Frost guns could be a revolution for the world too as they could build an ice barrier quickly in dangerous situations preventing people from falling off! When the ice from frost guns are melted, it could also become freshwater so people in Africa or the homeless can quench their thirst like a self-defence "weapon".

However, if flying cars and frost guns are used wrongly, they could make a deadly combination for war purposes or become national disasters affecting the climate of the world. I believe China will set rules to control the use of their new legendary inventions.

New Tales of China's Inventions

*St. Margaret's Coeducational English Secondary And Primary School,
Chow, Ching Wang Jasper – 7*

The toothbrush was invented in China over thousands of years ago! It was made of bone sticks, rope and animal fur. It was invented in the Tang Dynasty in 6000 BC and it was called the Chew stick at that time!

The Chew stick had two sides. One end was a toothpick and the other was for brushing teeth. It had kept evolving and the Indians called it Chew Wood because every morning, they had chew one end of it. We now have electronic toothbrush.

The toothbrush is a hygienic item. It can be used to brush teeth to prevent cavities happening. Before the Tang Dynasty, people would get a lot of cavities. When you eat, food bits stick to your teeth if you don't brush and germs will drill through tooth and a black circle will appear.

Today's electronic toothbrushes are faster, cleaner and they are easy to use. It is important that we brush our teeth every day to have healthy teeth!

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary And Primary School, Lee, Man Chun – 7

Gunpowder is one of the four great ancient China invention. Gunpowder can use to produce fireworks, rockets, cannons, bomb and mines. It is useful and helpful to build up the society. Among all products produced by gunpowder, I like fireworks the most. We can watch the fireworks during New year and other celebrations. Therefore, I am impressed by the inventor of gunpowder and fireworks in ancient China.

Gunpowder was first invented in the late Tang Dynasty in ancient China. Some Chinese Monks discovered the chemical formula of gunpowder when they are holding the life extending ceremony. Later in the Han Dynasty, an alchemist Wei Bo Xing wrote about a substance with gunpowder-like properties and pushed the development of gunpowder with other alchemists with experiments. Although original purpose for the alchemist to do experiments was to explore the immortality of life, they accidentally contributed in the development if gunpowder technology. The Technology of gunpowder was then transmitted to other countries such as Europe and Middle East and the technology was helped to produce weapons, such as fire arrows, bombs and fire lance and ever produce gun in the 13th century. These weapons are powerful in wars.

Despite the military purpose, gunpowder can be used in entertainment – Fireworks, which is usually seen during New Year celebration, it is one of the great invention with the help of gunpowder. Fireworks was invented by Chinese Monk Li tan in the medieval China. He was a fire cracker and he accidentally created fireworks when he tossing the bamboo into the fire, so that fireworks appear.

Although Fireworks appear long time ago, it has limited colour and shape; I hope firework come in different colors and patterns, long lasting time to make more people can see it.

The Magic Door

St. Paul's Co-educational College Primary School, So, Suet Ying – 8

Have you heard about the fantastic inventions from the ancient China? Chinese inventors invented things like paper and gunpower. They were super creative! Now, I have an idea for a magic door that can bring you to different places around the world in just one second. Let's explore this cool invention together!

Do you want to know how to make it? If you do, I will teach you. First, get some wood. Then, use a hammer to put the wood together. After that, attach a button to one part of the wood. Now, put some pictures of different places into the door. Press the button and choose a picture that you want to go there. Finally, open the door to adventures like a secret path through the place you want to visit.

Let's talk about the magic door's amazing powers. First, picture the door getting big, so ambulances and fire trucks can rush through for emergency. It is like a superhero door! If there's a big problem, the magic door can help heroes like doctors and firefighters get to people who need help fast. This is important during things like earthquakes or when the roads are really busy.

The second thing it can do is taking people on trips wherever they want. Since many people in China travel from their hometowns to work in cities, they can use the door to return to hometowns to visit their friends and relatives shortly. Then, they will not feel sad about missing home. During the Chinese New Year, families get together, but some family members are separated from Hong Kong and China and it takes time to travel for a reunion. Fortunately, they can use the magic door to visit grandparents and the elderly in China.

The third thing is traveling around the world in a flash. Usually, we have to take a plane and it can take hours or even days. Some people cannot fly because they are scared of heights or air crashes. Now, the magic door can help them to visit famous places like the Great Wall and the Forbidden City quickly and safely. It can even take people to places that are hard to reach by plane, like the polar regions.

Lastly, people can taste fresh food from all over the world. Fresh food is good for us, but it can spoil during long delivery times. With the magic door, we can get fresh food right away from farmers and fishermen and enjoy tasty and healthy dishes. Imagine you love strawberries, but they don't grow where you live. No problem! The magic door can bring fresh strawberries from a farm far away, and you can enjoy them whenever you want.

With the magic door, we can imagine a future where help arrives fast in emergency, families reconnect easily, everyone get a taste of the world's wonders, and we can have fresh food and become healthy. Step through the door, and let's have adventures together!

The Amazing Dialect Learner

St. Paul's Co-educational College Primary School, Tam, Hoi Kin Pascal – 8

China is a vast country and has many places to travel. There are also various kinds of languages and dialects such as Cantonese and Hokkien. Travelers might be confused when they explore different provinces. Some local Chinese youngsters cannot even communicate with their grandparents effectively. Many people might find it hard to learn because they do not have enough exposure to the language and culture of Chinese dialects. Some would feel shy to practice with their friends. But what if you can learn freely, and without the worry of others laughing at you? And, it's even at the tip of your fingers! We try to solve this problem by creating "The Amazing Dialect Learner". The feature of this app is for people to learn more languages by having a lesson with either a virtual teacher or a real teacher. It's up to you! There are also mini games to play. The goal is to help people pronounce the dialects correctly and connect people closer together.

First, you can choose the class size in the app. There will be private class or group class to choose from. Next, you can pick a virtual teacher or a real teacher. Each lesson is interactive which includes games. Users can store and revise all the lessons they have learned on the app anytime. You may unlock a special feature when you pass level four which is you can connect with other real users who are native speakers of the language you want to learn. You contribute to the community by teaching your mother tongue to other users while learning a new language. Users can make new friends and have a pressure-free environment to communicate with. The user's language skills will improve because of these special features. The Amazing Dialect Learner is designed to change the way Chinese people interact with each other. It can help people learn useful phrases and expressions in that language. Thanks to this technology, the people who didn't share the same language now can communicate effectively. Moreover, learning language is no longer boring with its fully interactive mode and enjoyable games. The learning progress is measurable by record of learning time and game points. Best thing of all, there are plenty of opportunities to practice with real speakers.

In conclusion, language is a door to cultural appreciation, a bridge connecting people, and a ground for respect. When we learn a language, we set off on a journey to understand the traditions and values within it. The Amazing Dialect Learner, by assisting language learning, is not just improving vocabulary; it's showing you a wider understanding of the world and promoting a friendly exchange of ideas and experiences. Hop on and give this app a try!

The Wonders of Lost Ancient Machinery

St. Stephen's College Preparatory School, Chiu, Matthew Jonas – 8

The ancient Chinese believed that events related to earthquakes or other vibrations of the Earth were important signs from Heaven. However, historic inventions were actually the first attempt to explain Earth's movements in a scientific way. The first earthquake detector was invented about 2000 years ago in China. The creator of the first seismograph was Zhang Heng who lived during the Han dynasty (25–220 AD). He was a brilliant astronomer, a mathematician and mechanical engineer. Zhang was famous for many inventions, such as the first water-powered armillary sphere to support astronomical observations; he improved the water clock by adding another tank and invented the world's famous seismoscope, which could predict the direction of an earthquake as far as 500km away. Moreover Zhang was also well known for his poetry which was studied by later Chinese writers. A true intellectual mind!

Out of all of Zhang's inventions, I was really fascinated by the first earthquake detector in history. The first seismograph invented was made of bronze, giant in size and very beautifully designed. Its surface was decorated with details of mountains, tortoises, birds, other animals and some antique writing. Some scientists question the meaning of its beauty – was it made to such detail to look more believable or function better? Perhaps it was a way for Zhang to express his artistic talents along with the brilliance of his engineering mind.

The detector featured eight dragon heads positioned in a circular pattern, each holding a bronze ball in its mouth, and there were eight toads placed under the dragons. The inner parts of the detector were complicated, but the mechanical function was basic; When the Earth shook, the pendulum inside would rock back and forth, causing a ball inside to roll down each of the channels. The ball would then hit a lever which opened one of the dragon's mouths. Then, another ball in the dragon's mouth would drop into the corresponding toad's mouth. Therefore, depending on which toad received the ball, this would indicate which direction the ground's vibrations came from.

The device had its first test in 138 AD when an earthquake was detected west of Luoyang, the capital city where Zhang studied. Very few believed that Zhang's invention worked. But after a few days, a messenger from the west of Luoyang reported that an earthquake had occurred there. This finally made people believe that Zhang's invention was brilliant and very accurate. Some people even called him the "Leonardo of China", naming Zhang after the great Leonardo Da Vinci.

Many types of machinery were invented in ancient China, however, many of them did not survive. Zhang Heng's seismograph was unfortunately one such type of machinery. Even though his invention was lost in time, the records of its mechanics and design survived and many research teams from around the world studied them in hope to recreate this remarkable invention. This made me wonder how Zhang could create something so incredible and so ahead of its time.

The Creation of Single's Day

St. Stephen's College Preparatory School, Fong, Kyra – 8

Every year, at the stroke of midnight on the 11th of November, people rush to their computers, ready to grab the best deals on the internet. Do you know why? In fact, this is a recent Chinese invention!

Another name for the 11th of November is “Singles’ Day”. This is because the four “1”s of the numerically written date (“11.11”) look like 4 lonely people standing together. Singles’ Day was invented back in the 1990s, by four male college students at Nanjing University, who wanted to celebrate the idea of not being in a relationship.

The celebration became more and more popular among young people in China, and they soon treated the day as an anti-Valentine’s Day. Maybe single people were sick and tired of lovey-dovey couples on the street during Valentine’s Day and wanted a celebration for themselves! Singles used this day to organize parties and have fun with other young people.

In 2009, Alibaba, a famous online-shopping platform in China, had the brilliant idea of offering discounts on Singles’ Day. People soon flocked to the website to get the best discounts to treat themselves and celebrate being single.

Afterwards, other international online shopping platforms realized how powerful this day was, and they began offering big discounts on their websites on the 11th of November, too!

Nowadays, the 11th of November is one of the largest shopping events in the world. This shows how powerful new Chinese inventions are. What began as a silly idea among four Chinese college students soon became an international shopping event. Large retailers surely have those four students to thank, especially Alibaba, who earned more than \$71 billion US dollars during Singles’ Day in 2020.

In my opinion, this is a good holiday to remind us to love ourselves for who we are, but we must remember not to let our self-love be determined by materialistic things. Instead, we should focus more on spending time with family and friends and doing things we love.

An Invention to Protect Our Treasures

St. Stephen's College Preparatory School, Ng, Yik Fung Oliver Charles – 8

Can you keep a secret? My home is filled with treasures! Yours too! Have you heard of the Chinese idiom: 「家有一老，如有一寶。」 It means that if you have a senior in your family, you are blessed with a real treasure. I have two great-grandparents on my mum's side. My great-grandmother is 98 years old, and my great-grandfather just turned 102 years old recently. They are precious to me. How can our family treasures be protected?

Why was there a need for the invention?

In an August 2022 publication by the Non-Communicable Disease Branch under the Department of Health of Hong Kong, I read that a “fall was the most common type of unintentional injury, accounting for 39.4% of all injury episodes” that happened within a year. The publication was based on “The Unintentional Injury Survey 2018”. It found that 88.6% of injuries in older adults above 75 were due to a fall. Internationally, the World Health Organization published a “WHO Global Report on Falls Prevention in Older Age” in 2007. The percentages differ between countries, but the fall-accident numbers get bigger as age increases. And more seriously, “falls account for 40% of all injury deaths”.

What was invented?

The muscles of older people are weak, so they can easily lose their balance, fall and injure themselves. Some falls appear because older people might not be able to see properly or they might have chronic diseases. In 2015, a Chinese company designed an airbag vest to protect older adults from falls. The company that designed the vest is called Guangzhou S-AIRBAG Technology Company Limited. Airbags are inflatable cushions found in cars to protect humans from injuries when a car crash happens. S-AIRBAG puts airbags in a vest for older people to wear that protects the hip, head, neck, shoulders, back and tailbone. The Intelligent Vest was born.

How does the Intelligent Vest work?

The Intelligent Vest has two built-in helium inflators. When the vest receives the sensor data that the person is falling, the helium will be released within 0.08 seconds, and the vest will puff up before the person accidentally hits the ground. Older people in many countries, including nursing homes in China, are using it. The design team had started developing new materials and inflation methods five years before the vest was launched. The company has also created a mobile phone application called the “Proprietary App”. The vest can be connected to the application, which sends an alert when a fall occurs. The vest is chargeable with a magnetic USB charging cable, which costs about \$7,800 Hong Kong Dollars. S-AIRBAG has already created an airbag belt that protects older people's hips and pelvis when there is a fall. It costs about \$5,500 Hong Kong Dollars.

What will we see in the future?

In the 2022 Hong Kong publication, injuries from falls in children aged 4 were 66.4%. I wonder if an intelligent vest for young children will be made soon.

New Tales of China's Inventions

St. Stephen's College Preparatory School, Yeung, Lok Hei Gemma – 7

China's inventions have always been fascinating! Let's travel back in time to see what some of the amazing inventions were that still have an immense impact on our lives today. The compass, invented by the Chinese between the 2nd century BC and 1st century AD, was commonly used in Feng Shui for the layout of buildings. By 1000 AD, navigational compasses were also commonly used on Chinese ships, enabling them to navigate. Nowadays, we have compasses in smartphones, making it convenient for activities like hiking or traveling.

Another great invention was the kite, which was developed in China around 1000 BCE. It is very interesting that large kites were used to lift people and as a way for the army to signal warnings. Even though we mainly use kites for leisure now, they are still interesting items that help us navigate wind direction and provide a means to gather with friends.

The invention of paper was commissioned by the Emperor of China to find an inexpensive and portable writing surface. The Chinese government official Ts'ai Lun produced and recorded a technique for the mass manufacture of paper during the Han dynasty. Without the invention of paper, we wouldn't have books to read, paper to draw on, or exam papers to write on. Would there even be libraries?

With the rapid growth of technology in China, let's now take a ride on an imaginary path to unlock a one-of-a-kind future invention. Picture this: a star-shaped, rainbow-colored seed that humans can ingest, and it will magically grow inside the body. After 5 minutes of ingesting the seed, a robot will be developed within your body and reside inside your brain. It will control the body with its built-in GPS, like having a smartphone inside your body, and turn you into an ultra-smart machine. Similar to AI machine learning, the robot can learn about your habits, likes and dislikes, and recommend new activities or hobbies. What makes it even better? It can help you improve your weaknesses and strengthen your strengths. On a daily basis, it will wake you up, remind you of all the tasks you need to do, help you choose the food you need, schedule appointments with people you should meet, and make all decisions for you.

If this seed were an imaginary-come-true, would you be brave enough to take it? Do you want a robot to control you, or do you want to control your own body?

The Woman who Saved the World

The French International School, TKO, Kim, Seeun – 8

Do you know what Malaria is?

Malaria is a type of disease that can be cured now but not in the past.

Malaria is a disease that is spread by mosquitoes. Tu You You saved the world after Malaria spread.

Tu You You was born on December 30th 1930 in Ningbo, China. She was sick with Tuberculosis for 2 years from 16 years old and was forced to stay home. Tuberculosis is a bacteria that makes it hard to breathe.

She could have just lied there doing nothing for 2 years but she did not! She stayed home studying medicine.

After she was cured, she went back to school and she kept studying medicine. Soon in Vietnam, a disease called Malaria spread all over the country. Tu You You joined a group called Project 523. It was a code name for a secret military project in China to find a cure for Malaria in Vietnam. Tu had to spend a few years away from her family to join the military project. She found a plant called Sweet Wormwood which had the power to treat Malaria.

When she came back home after the project, all her work had paid off by saving many people's lives. She was known all over the country. In 2015, she was awarded the Nobel Prize for her amazing cure of Malaria.

Tu You You invented a cure for malaria. Therefore she is one of the most famous Chinese inventors in the past.

Rosie The Red Robin

The French International School, TKO, Lee, Lauren – 7

Have you ever wanted a pet bird that can take you from place to place?

Then let me show you a sweet friend that can take you anywhere!

Did you know people in China used to write letters then tie them to a pigeon's feet to communicate with one another? Rosie the Red Robin from China helps people to go from place to place and do a cleanup for the earth. When you first see Rosie the Red Robin, she is very small but as time goes by, she grows bigger and she can carry a lot of you. Rosie the Red Robin only needs one battery plus when it grows it likes to consume trash. It also likes to breathe in carbon dioxide and breathe out oxygen.

When it grows big enough, you can go inside and take a seat. You can also press the room mode button if you are sitting in the driver's seat and there will be shelter for you with air conditioning. It consumes trash to produce energy and electricity. If you are sitting in one of the passengers' seats, then you can use some control buttons to make the seat comfortable for you. When driving, you can pick whether to go fast or slow.

If it is rainy, I recommend going slowly when driving but if you are stuck in a storm, activate the emergency mode by pressing the weather button. That will help you get out of the storm quickly.

If your friend's bird and your bird are close to each other, you can transfer any amount of fuel to each other. Planes use a lot of fuel, and they emit tons of carbon which is bad for the environment. Rosie, on the other hand, will only emit oxygen. That way, our earth will be very clean and healthy.

You can also travel underwater even if you are riding on the bird, you just have to activate the submarine mode then the bird will transform into a perfect sub. It also can help marine life if you press the ecosystem button.

You can drive on land as well, just activate land mode and there you go. If you are tired of driving just press the auto drive button to have a break and relax.

Did you know every year we dump a massive 2.12 billion tons of waste and there are about 5.25 trillion pieces of plastic estimated in our oceans?

Rosie the Red Robin can help people clear all this trash if we all work together and help the earth because it is our home, the place we live in.

Rosie the Red Robin can also travel through space. You just need to activate the space mode, then you will be able to travel through space. You will discover new planets and find a way to live on them, but the earth is still our home for many years to come.

We cannot wait to see the next Chinese invention!

China's Most Famous Invention: Chopsticks!

The Independent Schools Foundation Academy, Cao, Caitlin – 7

Chopsticks! Chopsticks! Over one and a half billion people eat food with chopsticks every day. In China, people use 80 billion disposable chopsticks every year. Did you know chopsticks were first used for cooking?

Chopsticks were invented 5000 years ago. The first few chopsticks were used for cooking because they were long sticks reaching the bottom of the cooking pots and stirring the mixture. Around 2000 years ago, people in the Han Dynasty started using chopsticks to eat. Rice, dumplings, noodles and stir fry were some of the first foods people ate with chopsticks. Compared to knives and forks, chopsticks were safer to use. During those days, food started to be chopped up into small pieces and chunks before cooking in Chinese cuisine, so chopsticks became a perfect match with such bite-sized food.

The first chopsticks were made from twigs and sticks. Now, they are mostly made out of bamboo, wood and plastic. The wood and bamboo are cut to the length of chopsticks and then milled to the shape. Next, they are sanded smooth in preparation for painting. Finally, they are painted with decorations and waterproofed. Wooden and bamboo chopsticks are mostly only used one time. Plastic and metal chopsticks are mainly used in homes and restaurants but are more slippery and challenging to handle.

Most Chinese children start using training chopsticks when they are four years old. These chopsticks are helpful because they teach children how to pick up food and keep it steady. When kids use chopsticks, they improve their fine motor skills and hand-eye coordination.

When eating in China, people should behave and pay attention to table manners. It is polite to wait for the guest or an elder to put their hand on chopsticks first. Always remember to hold your chopsticks properly by holding them close to the top end and stabilizing the bottom using the middle finger. Then, use the index finger to move them around. Avoid having one in each hand, and never shovel food into your mouth. If you are not using them, put the chopsticks on a rest instead of the table. Using chopsticks as drumsticks and pointing your chopsticks at someone are both considered poor manners.

Chopsticks can be used in many different ways. In the kitchen, you can use chopsticks to skewer meat and vegetables and put them on the grill, beat eggs to make scrambled eggs, test cakes to see if they are baked, and pit cherries and olives. For dessert, you can use chopsticks to make do it yourself popsicles and toast marshmallows over a low flame. Other creative ways to use a chopstick include: poking and unclogging glue bottles, cleaning dirt from small spaces, propping up plants, and so on...

Chopsticks are an important tool in our daily life, not only for food but also for many other uses. Let's use fewer disposable chopsticks to protect the earth and keep good eating habits and table manners to use chopsticks properly.

AI Squash Robot

The Independent Schools Foundation Academy, Wang, Youying – 7

Hello, dear readers! Welcome to the stories by Katherine Wang! Guess what I'm writing about today? It's China's next great invention! I will convince Chinese scientists to create an AI squash robot!

First, the mighty AI squash robot I have in mind will develop my custom-made squash, help me do my physical exercises program. Of course, it will know everything about squash, and how to play the game well. It will arrange my squash timetable based on how much time I have and on my body conditions of the day. After collecting the daily data of my body, it will quickly plan my training. Usually, it will categorise my exercises with warm up routines to start the day. Then I will proceed to specific squash skills practices, match simulations and at the very end, exercises for reflexes and fitness. After I have completed all the exercises it will give me recommendations on how to play better! However, there are more wonders!

Playing squash is just like playing tennis, they both require strategy and tactics. I may invest a lot of energy in striking a ball that would eventually prove useless. For example, the ball lands on the middle of the court on my opponent's side, that would favor her in returning a killer shot, which I should not be able to catch after all! To avoid this, my AI squash robot will study and analyze my opponent's play patterns then make recommendations as to how I can combat her. In addition, the robot would do the same with the world's best young players and teach me how to play like them! If I do it often, it will make me more quickly to get used to the style and habits of my opponents, play as smart as the world's best young players, then win the competitions much easier! Though, I believe the AI squash robot can help more!

I love watching squash tournaments in my spare time. My AI squash robot will be the perfect partner to watch the games with me. We will talk about the performance of the world-famous squash players – how they tackle the stress when facing stronger players? How they handle the emotions after the games? I will also share my feelings in the competitions with its robot, seeking its objective view and constructive advises.

All in all, I hope Chinese scientists will invent this AI squash robot. Not only that it will be fun, but I will also be able to improve my squash techniques dramatically! I hold a little dream in the bottom of my heart that one day I would be able to stand in the court of the world-class squash tournament to fight for the Champion for Hong Kong, China. I would be so proud of myself and my trustworthy partner – AI squash Robot on that day!



Creative Writing
Non-Fiction
Group 1

Robots shape our future

Kowloon Rhenish School, Cheng, Yan Lam – 8

The world is changing quickly because we find more new things about the world around us everyday. In the future, we will create super robots that can help us finish a lot of tasks quicker and easier.

Computers can do more and more things and they are becoming more powerful. In the future, I think we will create super robots that can change our lives.

We can use robots in many parts of our lives. They can help us study. Robots are like super computers, we can ask them a lot of questions and they can give you correct answers to all of them. They are also very smart. If you tell them to do something or create something they can also do it.

I believe that in the future, we can see robots everywhere. Robots will become our drivers. They will know to stop before a traffic light or to not crash into other cars. We will not need to learn how to drive because cars will move on their own or robots will drive the cars.

Robots can become our doctors in the future. We can create tiny robots and put them inside our bodies so they can keep us healthy and fight viruses. They can move around our bodies and look after it. We do not need to go to body checks because the robots will check our body everyday to make sure we are healthy, and all of our body parts are normal. The tiny robots can also fight viruses. We will not need to eat medicine or see the doctor anymore.

Robots can help us do dangerous things such as going to space or finding something under the sea. In the future, robots will be as smart as us so the robots in the future can do the same things that we do. People don't need to do these dangerous things on their own anymore. Robots will be smart so they can calculate the ending of different actions and choose the best move. That is why robots will not make mistakes but humans will. I think that robots will do dangerous things better than humans!

Robots can make our lives a lot better but if we do not become smarter, robots will take all our jobs. I think students should read more and try to think more. We should be more creative and not just follow what people tell you to do. We are not robots, we should think if it is right or wrong before we do something.

History of Gunpowder

Kowloon Rhenish School, Chi, Yik Hang – 8

Gunpowder is one of the “Four Great Inventions” of China. The earliest China inventor who documented the composition of gunpowder was Wei Boyang. He invented gunpowder, which was so powerful that no one could stop it. Let us talk about the story of gunpowder.

How was gunpowder invented? In the year of 142 AD, Wei was a Taoist alchemist of the Eastern Han Dynasty. When he was helping the King to make eternal life medicine, the pot used in mixing the chemicals exploded and that was how gunpowder was invented by accident.

Later, gunpowder was used in other areas of daily lives after it spread to western countries. One of its usage is building tunnels. In the 18th century, there was a need of moving many people over long distances that trains were invented. But it cannot go over mountains, or a long path needs to be made. People found that the explosive gunpowder can be used to destroy mountains and make railways for the trains much faster.

How gunpowder ended up being used in wars? In the 19th century, war broke out in many countries including China. Armies found that gunpowder can be used to make bombs and weapons. The bombs were really effective against the enemies and they won the war finally using gunpowder. However, many people died in the war because of the explosion caused by bombs. That's how they used gunpowder in the 19th century.

Gunpowder is indeed a great and useful invention for developing a country and industries but it is dangerous and scary.

New Invention of Paper

Kowloon Rhenish School, Fung, Tsun Hin – 7

Paper-making is one of the four great inventions of China. The first true paper-making process was documented in China during the Eastern Han period (25–220 AD). Throughout history, paper has played a crucial role in transforming society due to its impact on the spread of knowledge. Research shows that writing by hand can aid in memory, attention, and understanding new information. In this article, we will explore the future of paper and how it can be used in the fashion and household industries.

As we know, paper's function of record is fade out due to the new technology, "Paper" has to find a new role in future, for example, paper can be used in the fashion and household industries. Paper clothing has already been developed in China, Japan, America, and Europe. In the future, we can have more powerful development on the use of paper, and paper will become important again.

For fashion, we can imagine there is a new product named "Super Clothes" in future. This a cloth made by paper. It can grow with you based on your body growth and change the thickness based on temperatures. When it is summer, it can be thinner and when it is winter it can be thicker. In rainy day, it can be a rain jacket too. So, there is a multifunction in one clothes.

For household, a product called "Freeniture" may appear in near future. It is a paper that can make any furniture like sofa or bed and can change the shape anytime to make a new furniture. It can fold too! This free-style feature can save place, so your house wouldn't very messy and can reuse it many times.

In conclusion, paper has come a long way since its invention in ancient China. It has played a crucial role in transforming society and spreading knowledge. With the use of technology, paper can be used in the fashion and household industries, and even transformed into free-style furniture. The paper industry is keeping its value through innovation. We hope this article can give the World some idea to the future role and value of paper.

Robot nannies – The future Hope of China

Kowloon Rhenish School, Ho, Yuet Yi – 8

Many parents in China do not want to have babies because they are too busy to make a living. They have no time to take care of their kids. So, the birth rate in China is getting lower and lower. In the long run, we will not have enough manpower to make our country better. This is a very difficult problem for the Chinese government.

If we want to boost the birth rate in China, we need someone to help working parents to look after their children. At the same time, AI is getting smarter and smarter. That is why I think there will be robot nannies in a few decades.

These robot nannies have very strong AI to help them understand different kinds of crying sound. When the babies cry because they are hungry, the robot nanny can feed them with their favourite milk or food. The robot nanny also knows how to make the babies happy when they are bored. Also, the robot nanny will pat the babies to help them sleep. When parents want to see their kids, they can make a video call through the robot nanny too!

For older kids, the robot nanny can play with them and help them do revision. When children have questions, they can look for the answers by giving voice commands to the robot nanny. The AI in the robot nanny can get the answers from the Internet easily.

I believe robot nannies will be a dream come true in the near future. By that time, parents will not be afraid of having babies anymore because robot nannies can do most of the child-care work for them!

Smart Fridge

Kowloon Rhenish School, Lee, Cheuk Yin – 8

My family always get a problem: we always miss the expiry date of the food in our fridge and cupboard, and we have to throw them away. It is a big waste and it is not good to the earth. Plus, there are so many people who don't have enough food, and we could help them by giving them food before they get expired.

So, I have an idea to solve this problem. We need a special fridge and a special cupboard that could remind us. It could also help us keep check of what we have, so we don't buy too much food. We can save a lot of food and money if we have them.

The special fridge has been invented by a Chinese company and it is super smart. It scans the intelligence barcodes on the food packages and remind us when they are going to expire. It could even keep check of how much food we have and remind us to eat the food before they expire. That way, we won't buy too much food and waste much food.

If every family has the smart fridge, we can make sure all families do not waste food. It's important for us to take care of our planet. I think this smart fridge could make a big difference!

Food Waste Car

Kowloon Rhenish School, Li, Ming Sum – 8

During this Christmas holiday, my family, my friends and I want to celebrate Christmas together. We went to a restaurant having a buffet dinner. I saw every table had lots of food waste left after the meals. That makes me remembered I had visited an institution handling kitchen waste. The institution explained that many uses of food waste after processing such as making fertilizer, detergent, and more importantly, they can also be used to make electricity.

Nowadays, cars are not only driven by gas and fuel oil, but also electric cars have been invented. I hope China can invent cars driven by food waste. Those cars shall have some containers to put the food waste. The containers are connected to the power supply. There will be three different colours of lights outside the containers. They are white, blue and orange lights. First, put the food waste into the container, press the button. Once it starts, the white light is on. Second, during the chemical reaction, the light turns blue. Finally, when the process is completed, the orange light is on. This means the electricity is made and ready for use. Some containers can put inside the kitchen to collect food waste and produce electricity. Once the electricity is produced, we can put the containers into the car for use.

This invention can minimize food waste throwing in landfill areas and protect the earth. I hope China can invent cars driven by food waste in the very near future.

One of China's Inventions—Paper

Kowloon Rhenish School, Yu, Ho Hin Devyn – 8

Everybody knows China has a rich history of inventions that have had a significant impact on the world. Some of the most well-known inventions from China include paper, printing, gunpowder and the compass. These inventions revolutionized various fields and had a profound influence on the development of human civilization.

I would like to talk about one of the most interesting tales of China's invention is the story of paper. Two thousands years ago, when paper was not invented. People in China used some materials like animals bones, silk, and bamboo strips to record. However, these materials were expensive and not easily available,

1. Oracle bones : Need to take a lone time to carve a sentence.
2. Bamboo strips : It's heavy to lift from a place to place .
3. Silk : Very expensive materials , just can buy only a small amount of lots of money. Always only rich people can afford it.

Therefore, mostly people in China had a big problem when writing.

Cai Lun, a government official in the Han Dynasty. He was inspired by the wasps building their nests using fibres. He observed that the wasps collected fibres from plants and mixed them with their saliva to create a strong and flexible material. This observation sparked his curiosity and led him to experiment with different materials to create a similar substance.

He began his experiments by collecting various plant fibres, including mulberry bark, hemp, old rags and old fishing nets. He realized that these fibres could be beaten into a pulp and mixed with water to form a paste-like substance. This paste could then be poured onto a screen or mesh and spread evenly to create a thin layer. Once the layer was formed, Cai Lun would drain the excess water and press the remaining pulp to remove any remaining moisture. This pressed pulp was then dried, resulting in a solid sheet of paper.

This invention was super cool. Cai Lun's papermaking process revolutioned the way to recorded, transmitted and communication, as it was much more convenient, easier to storage and easier to produce than other writing materials. Also, it was much much cheaper!

The invention of paper had a big impact on the development of Chinese culture and society. Writing became more popular and easier, also printing and packaging. Cai Lun's invention of paper revolutionized the way to record, trasmitted, storage. And It played a vey important role in the development of civilization, enable the spread of knowledge, culture and creative as a significant milestone in human history.

Today, most people use computers to replace some paper use, for examples, bills, contracts, receipts ...But, paper is still widely used in various industries and remains an essential part of our daily lives. Like painting, paper could not be replaced. Like packaging deliveries, we must need papers to pack...For me, I would like to hold the comics in hands to see than better to see in iPad.

China's invention of paper is just one example of the country's rich history of innovation. There are many other super amazing tales of inventions of China, besides mentioned before that gunpowder, silk, compass, there are abacus, binary, hemp ropes making etc. These inventions have shaped the world we live in today and continue to inspire new innovations and discoveries.

How Paper Got Started

Po Leung Kuk Choi Kai Yau School, Bogle, Alexandra Powers – 7

We use papers in our lives every day, from reading our favorite books, doing homework to even writing letters to Santa. But do you know where paper comes from, and how it got started?

Before there was paper, people used sharp tools to write characters on flat stones, like the Rosetta Stone in Egypt. Stones are very heavy to carry, and they're hard to write on. Egyptians also used to write on papyrus. It is flatter and lighter in weight and easier to write on than stones. But papyrus doesn't last for too many years in humid weather. It can fall apart if it is handled too much.

Ancient China invented paper. During the Eastern Han dynasty, people at the emperor's court discovered how to make what we now call paper. They cut up tree fibers, and other materials like old rags and pounded them together with water into a sticky paste. Then they pressed down the paste under something heavy, to flatten it and make it wider and very thin, in the shape of a piece of paper. They dried the paper, and then it was ready to use.

The ancient Chinese used the paper for writing and for things like wrapping packages and printing money. The Chinese did business with people in many different places in the world, and they took paper with them when they traveled. Soon the new paper was being used by people around the world and continues up to today.

So, thank you to the Han Dynasty Chinese for inventing paper.

The Seismoscope: One of Life-saving Inventions

Po Leung Kuk Choi Kai Yau School, Chan, Ching Yuet Bella – 8

Long, long time ago, there was a Chinese scholar named Zhang Heng. He was talented and diligent from childhood. He was so keen on discovering something which could help people in the world. Driven by his curiosity and perseverance, he really made many great inventions. One of them was the seismoscope.

When he was 17 years old, he left home and pursued his study in Changan and Libyang. Not only could Zhang Heng write excellent essays and draw, he also studied and learned about calendars, mathematics and mechanics. One day, he was heartbroken to see people suffer from many earthquakes across the country. He thought, “It takes a lot of time to convey messages so as to save people from earthquakes. What if we could detect the occurrence of earthquakes earlier, we would be able to reduce the harm and help people in danger!” He was determined to make use of his mathematics and mechanics knowledge. Working endless days and nights, finally he invented a seismoscope. He was delighted and went to show it to the emperor. “Your Majesty, I have an important invention to show you.” “I invented a seismoscope. It detected the location of the earthquake that occurred last night in the northwestern area and you could prepare and transport the supplies to the victims there.” The emperor felt shocked with the big instrument in front of him. In a blink of an eye, a copper ball facing northwest had fallen from one of the eight directional dragons. It implied that another earthquake was coming in the northwest. The emperor was doubtful at first but he trusted Zhang Heng’s integrity and talents. He transported relief and supplies to the stricken areas immediately. Zhang Heng was proven to be right. The next day, a man came in and reported about earthquakes in Luoyang. The early news rescued a lot of victims. The emperor made Zhang Heng a Grand Scribe in the Imperial Court.

The emperor felt so grateful to Zhang Heng’s invention. People could evacuate earlier and escape from the earthquake disaster. With the emperor’s recognition of contribution, Zhang Heng felt motivated to keep inventing something to change the world. He soon afterwards built the first water-powered armillary sphere in the world. He employed a waterwheel and clepsydra to rotate the water-powered armillary sphere. He even invented a wind gauge to help measure the wind directions. Though they are not named as the Four Great Inventions which made us become civilised today, still the technology left by Zhang Heng saved a lot of people from unavoidable earthquakes nowadays. How beautiful it was to invent something for kindness instead of your own fame?

The Printing Method That Changed the World

The International School of Macao, Choi, Lonzo – 7

This morning I asked my parents who invented printing method the earliest? They went and grabbed a book it was called “100 things to know about China”, and my dad started reading “Long time ago, people needed to copy each book by hand, then there was this guy called Bi Sheng...”

Okay, let me tell you about Bi Sheng and his great invention. Now we are in 972AD when he was born, let's shut our eyes. Are you asleep yet?

Bi Sheng was born from a poor family. When he was a teenager, he started working in a book copying workshop as an apprentice. When he got his first order to copy a book, his handwriting was very nice and neat, but it needed a great deal of work to copy each book. Some people wrote badly, so some books copied very poorly. Because of the labor involved of copying, books were very rare and expensive! As time gone by, woodblock printing was invented. But Bi Sheng saw that woodblock printing also had problems. This is the method:

1. Cut down trees for a woodblock...hard work indeed and not very good for the environment;
2. Each woodblock can only use for one page of a book. So, if a book has 100 pages, each page has 50 Chinese characters, you would need to carve 100 woodblocks with 5000 Chinese characters!
3. Now, roll ink all over the woodblocks and press them onto papers to make book!

Well...you can see, each woodblock is only for a particular book, and you cannot reuse the Chinese characters for another book. Then there was another technique called rubbing print. It is also very hard.

As a clever Chinese young man, Bi Sheng got thinking...there must be a simpler and cheaper way to print books, so he thought more people can learn to read!

After numerous designs, trial and errors. Finally, Bam! In 1041 to 1048 AD, he invented the world first movable type printing! Bi Sheng used clay to carve out individual Chinese letters and bake this small clay stamps hard. Because the clay is much easier for carving, and you can mix and match for different pages, so books became cheaper and wider available!

BOOM! Dad asked now you understand the reason behind why Bi Sheng's invention is important? I said yes, WOW so in conclusion, thanks to Mr. Bi, knowledge becomes more accessible and the world has changed ever since! This printing method is so important that people nowadays call it one of the four greatest inventions of China, along with the other three: gunpowder, compass and papermaking. Imagine life without his invention, do you want to copy 1000 words a day?

China's Great Four Inventions

The International School of Macao, Chen, Kelsie – 8

Long time ago Chinese people lived in a small village, there's a person called Mǎ Liáng. He is poor and he lives in a small wooden house. Mǎ Liáng's parents passed away for many years. So Mǎ Liáng live by all himself.

He likes to draw but he doesn't have lots of money since Mǎ Liáng parents died so nobody could provide enough money for Mǎ Liáng to buy a pencil or paper. Therefore, sometimes he will get a stick and he will go outside to draw on the sand. One day he finds a hole under his bed. He was very curious so he crawled inside. Magically he found a pencil and a notebook on a wooden table. He took the pencil and notebook from the table. He was very happy and excited about that. He crawled back to his bedroom with the pencil and the notebook. He saw a picture on the back side of the black notebook. But he didn't care about it so he started to draw and draw on the notebook. After he puts the pencil and notebook on the floor, and goes back to bed. But then he wakes up because it's so hot as if his in an oven so Mǎ Liáng went outside and...

He saw ten sun on the night sky. "Ahhhh.....," his shout.

He even saw Nián but he wasn't scared at all because everyone put up fireworks and red stuff on Nián. Nián run away because it is scared of the color red and fireworks. But still there have ten sun, and also all the water evaporated so, some animals has died from thirsty and even some people died as well. Mǎ Liáng sits and think. He thinks and thinks one minute goes two minutes goes three minutes goes, and he thinks hardly then he got a idea Mǎ Liáng jumped out of the tiny bench and started to draw. Ma Liang draws and draw and draws Hòu Yì and Cháng É, then the drawing was gone ! Then... POOF!

Hòu Yì and Cháng É is alive! After Mǎ Liáng tells Hòu Yì about the ten suns.

Hòu Yì told to Mǎ Liáng, "Outside is very dangerous. You have to stay on the beach and don't go outside until I am done killing the suns."

"Okay" I said.

Then Hòu Yì stands up and walks outside to get a bow and the arrows to shoot the suns one by one until those suns all fall down.

Hou Yi wanted to shoot the last sun, but Má Liǎng took the last arrow and said, "Hòu Yì if you shoot the last sun then everywhere is dark how could we live."

"Oh, fine. I will not shoot the last sun, and I need to go back to the notebook and bye bye," Hou yi said.

Poom!!!!

Hòu Yì and Cháng É disappeared in the wooden house. After Má Liáng used the pencil and the notebook to help the village to return peace. Later on Má Liáng keep using the magic pencil and notebook to help the village and his life.



Non-fiction

Group 2

The Wonders of China's Inventive Legacy

Diocesan Girls' Junior School, Mak, Nicole Tiffany – 11

When we think of China's inventions, we usually associate them with paper, gunpowder, printing and compass. In fact, the Chinese people are highly creative, and their achievements have gone far beyond the four great inventions. Below are four groups of inventions from the ancient Chinese that demonstrate their amazing creativity.

The first category is everyday inventions. China built its nation on agriculture. To enhance efficiency in farming, seed drills were invented so that farmers did not have to plant the seeds by hand. The seed drills ensured the right number of seeds were tossed into the ground at uniform depth. In this way, the seeds were better conserved and the maximum number of crops could then be harvested to feed the people. Besides food being our daily necessity, clothing is also a crucial element in a civilized society. Our ancestors unveiled the secret of silk weaving back in 3,000 BC. Silk is a precious material as it is soft and gives out an air of elegance. It was an important trading item back then as many Westerners would travel from afar to pay for the high-quality silk products that were made in China.

The next category of inventions relates to entertainment. Have you ever imagined one of the world's most famous sports, soccer, originated from China? The sport cuju (meaning "kickball") was practiced by the Chinese more than 2000 years ago. Cuju was a fun game like football, apart from the fact that the ball could not touch the floor. Another fun item invented by the Chinese was the kite. The earliest kite was made of wood and was used for military purposes. Nowadays, kite flying is a leisure activity enjoyed by people worldwide.

The third category relates to art and decoration. Emperors in China before were known for their love of elaborate decorations in their palaces, so porcelain was a prized invention. The production of porcelain can be traced back to the Han Dynasty (206BC). Porcelain was used in everyday items including cups, plates and vases. The high-quality ones were used as decorative items for display, and you could see their worth from the artistic designs on them. When porcelain was traded to other countries, people admired its exquisite and unique quality and associated it with the land of origin – China.

The final category of inventions enhanced people's wellbeing and protected them from hazards. The earthquake detector was invented so the emperor would know when and where citizens had to evacuate. This helped significantly reduce the casualties. Acupuncture, on the other hand, was used for therapy and opened the gate for further understanding of the human body.

All in all, China has made an impact on everyone's lives through its creative and useful inventions. The next time you admire a porcelain display or fly a kite on a lovely Sunday, have a think and reflect on the ingenious ideas of the Chinese people.

Teleportation

Diocesan Girls' Junior School, Wu, Yuet Hei – 9

Did you know that the fastest train in the world is from China? It can move 501 kilometers per hour! Well, if we can go that fast, why can't we travel in a second? Why does nobody ever invent a teleportation machine?

Perhaps I will! I already have in mind how it will be like: The machine is simply a capsule. It looks like an enormous medicine pill, except it is made of metal, has a door and a few buttons here and there. Once you step inside, the machine will connect to your brain and find out where you want to go. Inside is a short metal pillar, and on it sits a small glowing blob that actually is alive and constantly changes colors and flashes just to annoy you and watch you fuss. Well, these are the things you will see in the first second you step into the machine, but then you would be sucked into the annoying blob (What?!) and a whole lot of nonsense would start happening. First, you would immediately be transferred into an unseen dimension between time and space. You wouldn't see much except for a few flashes of your past and then a quick replay of your favorite movie. (Not very relevant, probably caused by the annoying blob). Then, you would be blinded by an extra bright light, and before you know it, you would be standing beside the teleportation machine at your destination, not knowing what had just happened.

If teleporting machines are invented, China would be able to remove all the train stations and airports and make a lot more space. And nowadays, people order goods and food online, and they all wait for an hour and when the food finally arrives, it'll already be cold, but if the restaurants put the ordered food into the teleportation machine, it will come out hot in the customers' homes. Also, cars are really creating a lot of pollution, right? But if we teleport, we'd just be zooming around in nowhere and China would be a lot less polluted, protecting the residents from cancer and sickness. Also, did you realise that people are always either chasing buses and trains or waking up extra early just because they were afraid there would be a traffic jam and would be late for work? Well, none of this will happen after my teleportation machine comes out!

Don't you think it'll be really cool? China would become the world's lead in transport speed, and people would never have to rush, rush, rush again! But for now, I'm still young and I can't build the machine yet. Good luck on chasing buses!

Cai Lun – The Inventor of Papermaking

Diocesan Preparatory School, Ip, Yui Sun – 9

Papermaking is one of the four great inventions of China. Cai Lun is the inventor of papermaking.

Cai Lun was born to a blacksmiths family in Hunan during the Eastern Han dynasty. He received education in his hometown school when he was a child and quickly became familiar with ancient books such as “Zhou Rites” and “the Analects of Confucious”. He was already very knowledgeable at a young age.

Since his family could not support him to study in school for a long time, he learnt by himself from daily life.

Cai Lun was curious, he paid attention to new things and loved to ask questions. He observed how workers forged and cast ironware at home, and how rural women grew hemp and weaved cloth. He gained great pleasure from this and learned a lot of knowledge.

When Cai Lun was thirteen years old, he was selected to work in the palace. His job was to deliver edicts in and out of the palace. He was conscientious, modest and eager to learn. An old eunuch accepted him as his apprentice. The old eunuch often taught him cultural knowledge and principle of life. Cai Lun was appreciated by the queen and she sent him to serve the crown prince and help him to study. He was promoted to a senior eunuch position when the prince succeeded his father and became emperor. Cai Lun had won the emperor’s trust because he was very reliable. In his thirties, he was appointed to supervise the production of royal instruments and swords. His craftsmanship and management talents were fully utilised.

Usually, when reviewing the memorials of minister, heavy bamboo or wooden slips had to be carried to the palace. If the cowhide straps connecting the slips were broken accidentally, it would mess up the order of the slips causing trouble to the emperor to review the memorials. Cai Lun wanted to find ways to tackle the problem, he got the inspiration when women in the Western Han Dynasty soaked silkworm cocoons to make silk floss, dry some of the remaining silk floss into silk paper. Silk floss can be made into paper because they have fibers. Could we find something that is more widely sourced, easier to obtain, and less expensive to replace silk floss, he wondered? He summoned some craftsmen to study and discuss.

One day, Cai Lun went out to play outside the city and walked to a creek. His eyes were caught by a pile of thin cotton layer which he picked up from the stream and looked at it carefully. He asked an old man who was fishing by the stream, “Excuse me, old man, how do this thing come into being?”

The old man said, “This is found everywhere in the river. It is bark, cloth, broken fish nets and rotten hemp that are soaked in the river. After being soaked in water and exposed to the sun, it become like this.”

Cai Lun felt like he had found a treasure. When he returned to the palace, he immediately assigned people to collect large amounts of barks, cloth, broken fishing nets, rotted hemp and other worthless garbage. He repeatedly experimented with the different materials he collected and created a papermaking process: First, washed the raw materials, chopped it up. Next, soaked it until it became soft and rotten. Then, meshed and mixed the materials. Next, boiled them to make paper pulp and spread it into thin slices of paper layers. After that, it was peeled off when dried, flattened and polished. Finally, it became a piece of paper that was light, thin, fine, clean, smooth, cheap and durable.

In the first year of Yuanxing (105 AD), Cai Lun presented the successful trial production to the imperial court, and with the support of the Emperor, he mass-produced paper and promoted its use. Later, he was honored as

“Lord of Longting” for his achievement in papermaking, and his new writing material was called “Caihou paper”. “Caihou paper” had a smooth and glossy surface. It was very suitable for writing, and its raw materials were not expensive. The paper had replaced bamboo slips and silk as writing material in China. Papermaking is a remarkable craft that has greatly promoted the spread of human culture.

Chinese Inventors of the Past

Discovery Mind Primary School, Vinesh, Vasudev Moolekkugiyil – 10

China has been the source of many innovations, scientific discoveries and inventions. That includes the Four Great Inventions: papermaking, the compass, gunpowder, and printing. Chinese inventors throughout history have made significant contributions to the world with their innovative creations. Chess, the cannon, silk, the umbrella, acupuncture, porcelain, the seismometer, the kite, and even the toothbrush were some of the Chinese inventions that were very popular of the past.

From ancient times to the more recent past, Chinese inventors have played a crucial role in shaping various fields, including science, technology, engineering, and medicine.

Here are some notable Chinese inventors from the past:

Bi Sheng (990–1051) is credited with inventing the world's first movable type printing technology during the Northern Song Dynasty. He created individual clay characters that could be rearranged and reused, revolutionizing the process of printing and making it more efficient.

Zhang Heng (78–139), an astronomer, mathematician, and inventor during the Eastern Han Dynasty, is renowned for his invention of the seismoscope. This device could detect and indicate the direction of earthquakes, making it an essential tool for earthquake monitoring.

Zhang Zhongjing (150–219), considered one of the greatest physicians in ancient China, made significant contributions to traditional Chinese medicine. He compiled a comprehensive medical text that discussed various diseases, their symptoms, and treatment methods. His work laid the foundation for the development of traditional Chinese medicine.

Su Song (1020–1101), an astronomer, engineer, and inventor of the Northern Song Dynasty, is renowned for creating the "Celestial Atlas" and the "Clock Tower of the Cosmic Panorama." The Celestial Atlas was an elaborate star map that accurately depicted celestial bodies. The Clock Tower was a sophisticated astronomical clock that incorporated various mechanisms, including an escapement mechanism and an automatic celestial globe.

Shen Kuo (1031–1095), a polymath of the Song Dynasty, made significant contributions to various fields, including astronomy, geology, biology, and cartography. He developed an improved astronomical compass and made important advancements in the study of celestial phenomena. Shen Kuo also described the concept of true north and magnetic declination, which had a significant impact on navigation in the sea.

Wang Zhen (1290–1333), a Yuan Dynasty official, invented the world's first known wooden movable type printing technology. His method involved carving individual characters onto wooden blocks, which could be used for printing. Wang Zhen's invention greatly improved printing efficiency and played a crucial role in disseminating knowledge and culture.

These are just a few examples of the many ingenious inventors from Chinese history. Their inventions and discoveries have left a lasting legacy and have contributed to the advancement of various fields, demonstrating the rich history of innovation in ancient China.

The Ancient Chinese Inventions

Discovery Mind Primary School, Weber, Lincoln – 10

Introduction

In this text you will learn about the Ancient Chinese inventions. There are 5 sections and the categories consist of the chapters, The Great Gunpowder, The Interest–Piquing Paper, The Pioneering Printer Cube, The Campaigning Compass, and the Fabulous Finale.

Section 1: The Great Gunpowder

Gunpowder was invented by the Ancient Chinese. It was discovered while they pursued a way to get immortality through a potion. The most common compound the Ancient Chinese used during this wild goose chase was potassium nitrate, also known as saltpeter. Gunpowder was made from other materials too, such as carbon in the form of coal, and sulfur. This group of materials formed a powder called gunpowder. Sadly, some of the Ancient Chinese learned the hard way what gunpowder does. You can say that many of the gunpowder alchemists went out with a bang.

Due to gunpowder's high flammability and its tendency to explode, the Ancient Chinese used it in things like burning arrows. When England got its hands on China's explosive gunpowder, they came up with the idea of guns. During the time of England's 'combustive' ideas streak, Ancient Korea was also inventing the basis for the present day multi–fire rocket launcher. During battles the ancient Koreans fired arrows from a machine that used the gunpowder from China to create small explosions, allowing the firing off of multiple arrows, all with the power of a short bow, which was actually pretty powerful at that time.

Much later, gunpowder was used against the Chinese Nation when the British raided China during the Opium War. The British used their gargantuan navy consisting of many cannons, which used the exact same gunpowder that the Chinese had invented so long ago.

Section 2: The Interest–Piquing Paper

Before paper was invented, the Ancient Chinese used oracle bones, clay, stone, silk, etc, to write on. But all of these materials were either too expensive, too rare or too heavy. The Ancient Chinese then came up with paper which was a better alternative as writing material. Paper was invented when they mixed things like cloth, torn hats and other plant fiber materials while searching for a more portable writing material. After soaking the plant–fiber materials, they pressed the result to drain it of some of its liquid and to flatten it, then hung it to dry on the workshops building walls. It takes a while to dry, and after it dries, the result is the well–known paper we know today. It was very helpful because paper was a much lighter material than clay or stone. It was also a less expensive material than silk.

Paper became a more portable material, but the Ancient Chinese ran into other problems. Due to the amount of ink required, paper consumed a lot of the needed resources to make ink. It also required a lot of patience and energy, so only the skilled and experienced could take up this job at the time, and the documents had to be delivered under a strict amount of time. Being late with the deliveries could cause many problems for the Chinese, such as non–aggression agreements could be cancelled, or even trade routes could be blocked off if they were not written down on time.

Section 3: The Pioneering Printer Cube

As mentioned in the last section, writing needed to become faster, less energy consuming and material consuming. To solve this, the Ancient Chinese invented a printer cube for every single combination of letters and symbols in existence in Chinese language. However, that made writing even more material consuming, so they only solved one problem. As the numbers of Chinese symbols grew, the needed amounts of wood to make the combinations were getting out of control. So the Ancient Chinese decided that they should only make the letters, and not the combinations.

The Ancient Chinese later on created a printer that was fast, material efficient, and less energy consuming. The printers were built into one of the side walls of the workshops. It had 3 sections of wood attached to each other, forming a three step process to write anything. The printer could be taken out of the wall, and could be folded back in. Since they now only needed to build one printer cube per Chinese symbol, there was less material deficiency related problems in that area for a while. Also, since writing was no longer so energy consuming, more people could take on the job.

Section 4: The Campaigning Compass

The compass was a revolutionary invention that enabled even the most lost of people to tell where the North is. It helped navigation because they could better tell their bearings. A compass user could tell directions without needing to follow the migrating birds or tracking celestial constellations which were not always visible or reliable.

The first compass of the Ancient Chinese, was a brass spoon that was supposed to represent the big dipper, placed on a brass pedestal that was to represent the sky and other constellations. The big dipper is a constellation of stars that centers on Polaris. Polaris is the northernmost star that is the most popular star for celestial navigation in the northern hemisphere which is also the hemisphere of China.

The first compass was actually only used to distance houses from one another, as to leave space between them. Eventually, the Ancient Chinese used the compass more and more to navigate during explorations. One example of the Chinese explorers was Zheng He. The compass would be very important for his exploration of the southern hemisphere where he would not have been able to see the Big Dipper.

Soon after, the Ancient Chinese designed the water compass as a more portable compass. It was more reliable and sturdier than the spoon and pedestal compass. The water compass had a glass top so the needle could not so easily be lost as opposed to the spoon and pedestal compass which easily got lost. The water compass was an early version of the modern day compass.

The invention of the compass enabled the Chinese and other countries to progress very far and fast in exploration of foreign territories especially the ocean that the ancient people were generally afraid of. The invention of the compass was very important in the creation of the modern world.

Section 5: The Fabulous Finale

The Chinese people are proud of their inventions that shaped modern civilization.

Around the 1970s, China held a festival in honor of all of these inventions showing how they helped build the world we're living in.

All the inventions helped shape the world so much, but my favorite is paper, because for almost 2000 years it's been the basis for the recording of history and knowledge including the facts I've presented today!

New Tales of China's Invention

ESF Beacon Hill School, Chan, Nikita – 9

How many inventions have China done? What were they? Are they all still use now today? Why were they invented? How many people use all these incredible inventions? According to the official count China has made proximately 23 successful inventions that have changed the world, But the most common ones today used were the Paper, Gun powder, Compass and Movable type printing press. In fact, they are still commonly used now today but are converted in more valued improvements and versions, and researched this the chinese history that tells us all about it.....

Great Ancient Paper –

Paper as known as one of the greatest inventions that China has made was only existing in the AD 105. Before then people used the oracle–bone writing in the 1100 to the 1600 BC. The oracle–bone writing was the earliest writing for the Chinese. Soon after papyrus was alive, a plant base material used for writing. It was the earliest thing like paper. Chinese man in the Han Dynasty 105 AD revolutionised the way people wrote and read. The leges says that the man is called Cai Lun once saw a wasp knitting its nest. It only did three steps, Fibre Saliva and knit then they got the most unbelievable idea of all times. Used bamboo fibres, added them to water and pounded them very hard with a wooden tool. After the fibres were throughly interwoven he poured the mixture on a flat woven cloth and letted the water drain out and let the wet mixture dry up in the sunlight. And after a few hours the first paper was born. Cai Lun presented his paper making process to the Chinese Emperor and received praise for his ability. And universally the paper was called paper of Marquis Tshai. The Chinese kept the discreet for a long time but started to defeat of the Chinese T'ang army in 751 A.D. And by the end of the 12th Century a major part if the world were using Cai Lun's method of manufacturing the invention the paper.

But as the popularity of this spectacular new invention grew so big and so did the demand of wanting the paper. A demand that the manual method of paper manufacturing couldn't certainly meet their key. This eventually gave way to water–powered paper mills the first evidence of which dates back to the Spain kingdom of Aragon in 1282. The most common fibre source the manufacturing process used was form a rag picker. Included hemp linen and cotton, The use of fibre source was continued for another 6 centuries before another evolution. The cost was cheaper than bones and animals skin but still the supply was low. This was until two men from different continents named Friedrich Gottlob Keller and Charles Fenerty tried wood fibre as a source material. In light of this new discovery the mills started replacing this new discovery the source material with wood fibre and a new era of paper making began in mid 1844 and by the end of the 19th century all the paper manufacturers in the west were converting the wood into paper.

Burning and fighting gunpowder–

Over centres the gunpowder was use in war, fights and now fireworks but how did they invent it and was the great history behind it. Gunpowder was invented by chinese taoist alchemists about 1000 A.D. When they tried to find a potion to gain human immortality by mixing elements of sulfur, charcoal and saltpeter instead of the potion they created was a flammable powder that burned down many of their homes. They imminently realised that black and greyish powder which they called fire medicine, was precisely the opposite of something that would make you live forever. In these early days the Chinese hadn't yet figured out how to make the powder explode. It was simply very flammable, and their army use it to make flaming arrows and even a flamethrower. But once the figured out the right proportions of ingredients to creat a blast, they began using the powder even more, creating fireworks to keep evil spirits away and bombs to defend themselves against mongol invaders. It was these Mongols, most likely, who spread the great and beautiful invention of gunpowder across the whole planet Earth...

The leader the compass—

The first compass was invented during the Han Dynasty around 200 BC. It used lodestone which was naturally magnetised piece the mineral magnetite and was carved into a spoon shape and it automatically pointed to the south it sat on a bronze plated and when it moved around aligned to the Earth's magnetic field, this compass was not used for navigation back then in china; but for harmonising people's lives and environments by the song dynasty compasses consisting of a magnetised needle in a bowl of water were being used for navigation on ships. The first use for navigation was around the 11 centuries.

Easy and fast movable type printing—

Printing came around in the 1040 A.D. During the Northern Song Dynasty by the inventor Bi Shing this is recorded in the dream pool essays by the Chinese scholar official Shen Kuo while woodblock printing had already been alive in china since centuries ago before Shang had invented the first movable type printing press and was centuries before Johannes Gutenberg would like to have invent a metal version in Europe. The Chinese characters were put on unto the clay types and assembled to print a page but instead of writing all these amazing books by two bare hands they could be printed on paper rapidly non-stop.

To this day, people still use their great invention to do many things like when you're hiking or climbing a mountain you would need a compass and the compass was invented by the chinese, everyday life we would at lease use a piece of paper, to celebrate the new year's we use gunpowder to make the fireworks happen and if it wasn't the chinese that started the movable type print we wouldn't have this many books and every day at work you might use the printer to print your things. Thanks to the Chinese we have a very enjoyable and successful life.

New Tales of China's Inventions

ESF Beacon Hill School, Cheng, Sunny – 10

Have you ever wondered about the most 4 useful things that you use in life almost everyday? Introducing the four new inventions! But before I start, I need to tell you about the Four inventions in ancient China first.

Firstly, we have paper making, which is still something we often use till this day. Then we have movable printing, which is somehow really useful in the past but we rarely use it nowadays that we have printers. Thirdly we have the magic compass, which was made with a magnetic board and a magnetic spoon. Finally, we have Alchemy and gunpowder, which can be used to make fireworks. Honestly, I think all of these inventions are pretty important, especially to make our lives more interesting and convenient.

Now, let me tell you about the first of the four new inventions, which is Ofo! When you're walking through the street do you sometimes see a row of bicycles? If you do, they are from Ofo. You can borrow the bicycles by scanning the QR code on it and with just a few clicks with your fingers, you can ride your bike in no time! It's also eco-friendly because it doesn't consume gas which leads to pollution. On the other hand, the prices are really cheap, so it is always affordable. Speaking of how Ofo works, are you wondering how you pay for it? With Alipay! That's the next thing in the four new inventions. Alipay is used in many shops. Obviously, it's a digital wallet, but can you guess the amount of people who are using it worldwide? Up to 1.3 billion users around the world! You can keep money in the wallet ranging from a single cent up to the amount you just need! If you don't trust me that it's so convenient, why don't you just imagine yourself, try to carry 1 billion dollars in cash (and having to take money while sweating and scorching heat), whereas, you can just carry your phone around, only carrying 130 grams with you.

Thirdly we have Taobao. Which is used for online shopping. Almost everything is affordable there since it's so cheap. You can buy a great variety of items there, such as clothes, makeup, toys, stationaries, food, kitchen finds or other thing you use in daily life. When you buy things, they are usually split into many categories, you can either search the item up, or browse around the suggestions below the search bar. When you want to search for things, each Item has their own box you can easily find the information about the item. There is even a video about the instructions of the product. When you shop outside you need to take public transportations like riding a bus or a taxi to the nearest supermarket? But, with Taobao, you can easily buy things at the comfort of your house which reduces less pollution to our environment.

The last new inventions are the high-speed rail train. To make traveling from one place to another easy and convenient? Use the high-speed rail train! It's obviously a transportation to all of us which we know, and the reason is because it's convenient and eco-friendly, but how? Well, high speed rail trains use electricity instead of diesel fuel. Did you know that more than 20 countries in Asia and Europe have high-speed rail trains? It can also cruise up to 221 miles (355 KM) per hour, and some have reached even higher speeds. In Hong Kong, we can go to mainland by high-speed rail trains within an hour.

Lastly, although these inventions are very beneficial for all of us. I am confident that in the future. For example, a car that could drive itself, and a table that works like a phone or I-pad! We never know when these inventions will be real one day!

Inventions that Changed the World

ESF Beacon Hill School, Ganesh, Inba – 10

One country had what it took to turn the course of history. Below are 4 remarkable inventions of China that changed the world. These extraordinary creations are the compass, seismograph, mechanical clock and silk. These past achievements have shown the world that this country was capable of changing the world in a way that has never been done before.

Compass: The magnificent compass which ruled the history of navigation for more than 2000 years is the first great invention. Made out of a material called lodestone, the compass's earliest use was for fortune-telling and geomancy. At first the compass wasn't used that much as people didn't know how to read it. But a few centuries later, they made little changes that helped them to use it more properly. After they learnt how to use it, it became one of the world's most widely used navigational tools. Nowadays, all sailors know how to use a compass if they ever get lost in sea or land. Remember, your body takes you to places, but your heart takes you home. Speaking of land, let's now move on to the invention that helped and still does save countless lives in China and the world.

Seismograph: The Seismograph was built in 132 A.D, a really long time ago, and was one of China's most treasured possessions. The reason it was so valuable was because it helped save countless lives in a most peculiar way. The seismograph's importance and purpose was to warn people about earthquakes, and as many occurred in China it was a vital instrument of its age. The first seismograph was 6 feet wide and 8 feet tall. It was in a cylinder shape with eight dragons at the top and eight toads at the bottom with both aligning perfectly top to bottom. Each dragon and toad were facing one of the eight directions. Even if the slightest tremor occurred, a mechanism inside the seismograph would open the mouth of a dragon and a bronze ball would fall into the mouth of the toad which was pointing in the direction that the earthquake had occurred in, creating enough noise to alert somebody that an earthquake had occurred there. But as this mechanism was very complicated to make, only royal families such as the emperor's, could purchase it. This warning device alerted the emperor where and when to send help, saving millions of lives. Keep in mind that Mother Nature is a powerful force and earthquakes remind us of her strength and unpredictability. Now, let's move onto the invention that helped save time and reminded us how to use it wisely.

Mechanical Clock: This region also invented a creation that completely transformed time. The Mechanical Clock didn't only tell the time of the day, but also the day of the month, the stage of the moon and the position of some stars and planets. At the top of the clock was a rotating dome that showed the objects in space their places. The making of the clock also completely changed the way of traveling by sea. This treasure allowed sailors to measure how far they were traveling and how much time and fuel was needed, creating the great age of discoveries and occupation of other countries and in other words : War. The mechanical clock also advanced astronomy, as now stargazers and scientists could now measure the paths of ancient and heavenly beings with greater accuracy. Being compared with astronomical systems for measuring time, the mechanical clock is less accurate, but can be used at any time of day or night and even in the worst weather conditions. We cannot turn the clock back, but we can do our best today to make tomorrow a happier time. Finally, let us move onto the last and hopefully the most magnificent invention.

Silk: Chinese legends and myths describe how silk was discovered almost 5,000 years ago by Xi Lingshi, an empress of China. On a lovely evening with cool breezes the Empress walked into her garden and plucked a silkworm cocoon from a nearby mulberry tree. The cocoon slipped out of her hand and fell into her drink and she watched as a strong, white and long thread uncurled. China maintained its secrecy over silk production for another great 1 thousand years, as they were afraid that this material would be exposed to the rest of the world and other countries would start creating silk of their own. Silk was also used for a great number of other items , including writing. The color of silk worn was also an important guide of the different classes during the Tang Dynasty. Soon, other countries also found out about this material and wanted to purchase it. Silk was more expensive to the rest of the world because it was brought all the way from China, crossing dangerous roads through mountains and deserts including the Himalayas and Gobi Desert. Silk became a prized item for the Chinese as nobles and kings of foreign lands desired it

so much, they would pay the highest prices for the cloth. In fact, the demand was increasing so much that China found a path to the west and called it the Silk Road. Know that, Silk does for the body what diamonds do for the hand.

In conclusion, China has created these inventions for the greater good. The compass shows new paths in life and the seismograph forecasts that danger can be prevented while the clock displays that time flies like the wind and that you should use it wisely. Last but not least, Silk has shown us that beautification comes in many different ways. If you are from China and reading this article you should be proud of your country for proving to the world that they are capable of doing anything.

New Tales of China's Inventions

ESF Beacon Hill School, Li, Audrey – 10

China is a really cool country that makes lots of awesome and creative inventions! They're really good at using their smart creative brains to create new things. In this, we'll learn about some of China's super awesome inventions.

They're making things like robots that can think, super cool electric cars, clean energy for a better planet, the high speed rail, space exploration and apps having cool features. Let's dive in and see what these inventions are all about!

So The most popular app all around the world is made by a Chinese company called bytedance. Can you guess which app? Can you? Fine I will give you a hint it is usually used for dancing! Can you guess? I knew you could guess it, it is Tiktok! Tiktok is an Online platform where people use it for lip-syncing, Dancing, Funny videos and Informative videos. Tiktok has suppressed 1 billion monthly downloads and is quickly catching up to instagram day by day. Bytedance's mission is to inspire creativity, bring joy and enrich life. Time flies by so fast because a few years ago we were still using TV to watch news, but now we use our mobile device's to watch youtube shorts, Tiktok, Instagram etc... Tiktok inspired youtube on youtube shorts which tik tok made called 15 second video models.

Tiktok can make someone break their career where it can lead to new trends and people also do food blogs, dance trends and transitions. There is another very famous app in Hong Kong that people love to go shopping in. It is a very cheap order where the quality is pretty good and it ships from China down to Hong Kong. I know what you are thinking and if that app you are thinking of is Taobao! Jack Ma founded TaoBao but before that. He created Alibaba/Alipay! Taobao's direct English translation is "Digging Treasure". Taobao is a online shopping app that allows you to buy different objects from different types of shops that has different kind of items you can buy it is basically going through shops to see what you like for example you want to buy a apple watch strap and thinks the apple store is too expensive you can just search apple watch strap in chinese and it will lead you to the shops that sells apple watch straps and you can choose your watch model then your color that you desire and it will add it to your shopping cart. Lastly there is an app that the whole of China must use to communicate with others and you can use it for paying at stores, supermarkets, and restaurants. I bet you can't think of which app I am thinking about is Wechat!

Wechat is an online platform that people use to chat like whatsapp but it has games on there and tons of apps or websites and so much more amazing apps all in one app! Wechat was created by Allen Zhang January 21 2011, there is an older version of wechat that could only text like whatsapp was called QQ. Now Wechat can do lots of modern stuff like call didi/Taxi, Pay for items and play games on the same app! Can you guess how many downloads does wechat have? 1.3 billion downloads! 1.412 billion people are living in China and over 90% of the population uses wechat while the other 10% or lower people doesn't use wechat. The wechat team is aiming to become the leading customer experience, Wechat doesn't just let you message your friends and see their updates on feed it, wechat allows you to play fun games except of only texting your friends or family members and posting on your status and it is so much more fun on a app like it is a one-thousand in one app like I don't think there is a thousand apps but it is a metaphor. Anyways, did you think that was fascinating? China made a lot of cool apps that help the people's everyday. But here is some information that will shock you, China is also making special cars called electric vehicles (EVs). They don't need gas like regular cars. They run on electricity, which is much better for the environment and the earth. It's like having a car that's powered by a superhero but actually powered by batteries! Also China is working hard to make the world a better place. They're using new inventions to make clean energy. They have lots

of big, shiny solar panels that can make electricity from the sun. They're also using wind power to make electricity. This is important because it helps to keep the air clean and helps our planet stay clean and healthy. If you are from Hong Kong you must know the high speed rail that goes to China. China is well known for its high-speed rail train, which is one of the most extensive and advanced in the world. Their trains can reach speeds of over 300 kilometers per hour, offering fast and convenient transportation options for passengers that need to go across China or something like that. The high-speed rail system has revolutionized travel within China and has become a model for other countries to emulate. And last but not least China has made very remarkable progress in space exploration. They have successfully launched and operated space missions, including the Chang'e lunar exploration program. China became the third country in the world to land a moon rover on the moon, showcasing their expertise in space technology. Now you see how China's inventions are truly amazing! They have high speed trains. The really amazing apps that have so many functions and China is also working hard to make the world better with clean energy and electric cars. Their solar panels and wind power help keep the air clean. Electric vehicles don't need gasoline, so they don't pollute. China is a place full of cool ideas and inventions. I can't wait to see what they make next! The future will be fantastic and magical, thanks to China's inventions!

China's Great Inventions

ESF Beacon Hill School, Ng, Kacey – 10

Do you know about China's old four great inventions?... I'm about to share some information to you!

Let me tell you about gunpowder first—Its pretty cool! Gunpowder is a mix of unique things that make a big boom sound! It includes: Sulfur, Charcoal, and potassium nitrate. If you light it up, it explodes and releases gas and heat. People in the past used it for cannons, fireworks and guns. It's very dangerous, so let the grown ups handle it!

Second one is papermaking! It's also pretty interesting. Papermaking is the process of making paper from trees. First, they started by cutting down mulberry trees and removing the bark. Then, they soaked the bark in water and pounded it into a soft pulp! Next, they spread the pulp onto flat screens and let the water drain away, leaving behind a thin layer of fibers. They pressed the fibers (fiber is a tiny, thread-like structure that make the pulp used to create paper.)together, dried them in the sun—tada! They had paper. This invention made a huge impact because it made writing and drawing way easier! People in China were the first people to use paper, and it eventually spread to other parts of the world. Cool how trees can turn into paper!

The third one, is a compass! The compass is a super cool invention that originally made by ancient China. Imagine trying to find your way without Google Maps or GPS devices! That's where the compass comes in handy. It's like having a little magical device that always shows the way. The Chinese compass is made up of a small, round object called a magnetized needle, which is usually made from a special type of metal called lodestone. This needle is attached to a piece of wood or cork, and it's free to move around. It always points north because of Earth's magnetic field. So remember the next time you use a compass, remember that it was invented by the clever minds of ancient China, and it continues to be a helpful tool for adventurers and explorers around the world!

Last but not least, printing! China has a fascinating history of printing. I'll show you the magic! Woodblock printing: Using carved wooden blocks, ink is applied and pressed into paper to create prints. Moveable Type Printing: Characters on small blocks can be rearranged to form different words and sentences, like a puzzle! Impact: Chinese Printing spread knowledge and made books more accessible to people everywhere. Conclusion! : Chinese printing changed the world! From woodblock printing to moveable type, it brought knowledge to people and left a lasting impact. It's an amazing art that shows how creative and clever people can be!

As I have told you about China's great four old inventions, I'll tell you about the new ones as well!

China's high-speed railway! It's a super fast train network that connects cities. The train goes over 300 km/h and has comfy seating. It's efficient, boosts the economy, and makes traveling easy and exciting!

Then, there is online shopping. It's like a magical world of shopping from home. You can buy anything you want and get it delivered fast. It's like receiving surprises in the mail!

China's mobile payment is a convenient way to pay using smartphones. People can link their bank accounts or credit cards to their phones and make payments by scanning QR codes or using NFC technology. It's fast, secure, and widely accepted in many stores and restaurants. No need to carry cash or cards anymore!

The last new invention China made is bike sharing. Easy and eco-friendly transportation! China's bike sharing is a popular way to get around. Users can rent bikes through an app, ride them to their destination, and leave them for others to use. It's convenient, reduces pollution, and promotes a healthy lifestyle!

But after all of those inventions, do you know the founders of the old four inventions? Well I simply have some information!The discovery of gunpowder is also attributed to ancient China. The exact origin and inventor of gunpowder are not known, but it's believed to have developed during Tang Dynasty. The founder of papermaking is traditionally credited to Cai Lun (Also spelled Tsai Lun) who lived in the Eastern Han Dynasty. The founder of Woodblock printing in China is not credited to a specific individual since it predates recorded history. As for moveable printing in China, it was developed during the Northern Song Dynasty. The inventor was Bi Sheng. The founder of the compass is credited to the Chinese during the Han Dynasty, the specific individual is not known.

China's inventions made a huge impact on the world. From paper to the compass and printing, they changed history! These inventions made knowledge accessible, helped explorers navigate, and spread literacy, and more, making our life easier. They also inspired modern innovation (refers to the development and creation of new ideas). Chinese inventions are amazing and continue shaping the world, inspiring new inventors!

New tales of China's inventions

ESF Beacon Hill School, Shy, Audrey – 10

The abacus is a manual frame for counting, that has been used since ancient times like since the second B.C.E.(300 B.C.E). The abacus is the oldest calculating device that is still up-to-date. It is operated by moving the plastic balls/beads up and down on the rods because the beads stand for digits and the vertical column of beads on the right represents the one's place and the place value moves up as you move to the left. It is mainly used to solve math equations or essentials.

Abacus is a Latin word from a Greek word “abax”, which means an ancient counting board with grooves where people put counters. It is also the root for the Greek word “abakos”(æbəkəs) which means calculator abacus. Abacus education improves the skills of Visualisation (photographic memory), Concentration, Listening Skills, Memory, Speed, Accuracy, Creativity, Self-Reliance. The basic objective of the abacus was to count items and numbers. But now we not only keep track of numbers with it, we also use it to perform basic mathematical calculations in accounting and education. Besides using it to calculate the core use of addition, subtraction, multiplication and division, the abacus can also calculate roots up to the cubic degree.

The abacus, called Suan-Pan in Chinese, was first registered at 1200 C.E. in China, and was developed by Chu Pan, who also came from at least as early as the later part of the Chou Dynasty between the sixth and the third centuries B.C.. But, some websites say that the abacus was made by Ancient Mesopotamians of Sumeria around 2700 and 2300 B.C. The Sumerians and the ancient Chinese developed their civilisations independently in different places of the world, and there is no evidence to show there was a connection between the two. The abacus has been existing in China since the second century BCE, which is years 200 – 101 BCE, although the oldest counting boards have been found in fourth century BCE in Rome.

The basic purpose of the Abacus was to be used to count items. The invention of the Abacus occurred in Sumeria around 2700 to 2300 B.C.E. using a base 60 system, but the oldest known abacus example is the Salamis Tablet in Greece in 300 B.C.E.. Merchants who traded goods needed a way to keep count of the goods they bought and sold. Numerous transportable counting devices were invented to keep tallies. The abacus is one of many counting devices invented to help count large numbers. When the Hindu-Arabic number system came into use, abaci were modified to use place-value counting. Abaci evolved into bionic calculators, pocket slide-rules, electronic calculators and now abstract representations of calculators or reproduction on smartphones. It is necessary to tell the difference between the early abacuses/abaci, known as counting boards from the modern abaci. The counting board is a piece of wood, stone or metal with carved grooves or painted lines between which beads, pebbles or metal discs were moved. The abacus is a device, usually of wood. (Before, Romans made them out of metal and they are made of plastic nowadays), having a frame that holds rods with freely-sliding beads set up on them. Though both the abacus and the counting board are mechanical aids used for counting; they are not calculators in the way we use the word today. The person operating the abacus performs calculations in their head and uses the abacus as a prop to keep track of the sums, the carries, etc.

Used in open-air markets of those times, the simplest counting board involved drawing lines in the sand with one's fingers or with a stylus, and placing pebbles between those lines as place-holders showing numbers two pebbles in the 10s column would represent 20. Wealthy merchants could afford small wooden tables having raised borders that were filled with sand (usually coloured blue or green). An advantage of these counting boards on tables was that they could be moved without disturbing the calculation—the table could be picked up and carried indoors. With the need for portable devices, wooden boards with grooves carved into the surface were then created and wooden

markers were used as place-holders. The wooden boards then gave way to even more more sturdy materials like marble and metal used with stone or metal markers.

The design of the abacus is based on a pair of human hands (each row has ten beads, corresponding to ten fingers). The abacus is operated by sliding the beads right to left . If you hold out both hands in front of you, you will see that your two thumbs are beside each other and two sets of 4 fingers spread out from there. Similarly, on the abacus, each row has two sets of 4 beads of the same colour on the outside, representing the two sets of 4 fingers and the two innermost beads of the same colour representing the two thumbs. The "home" position for the beads is on the right hand side. The bottom-most row represents units, the next row up represents tens, then hundreds, and so on. So, counting is similar to counting on one's fingers, the beads move from right to left: 1 to 10, and then carry upwards to the next row. Observers will notice that the metal rods have a slight arch to prevent the counted beads from accidentally sliding back to the home-position.

In conclusion, the abacus is a very old and important counting device that was made since the 2nd century and is used until this very day, it can help you revise your math, speed, accuracy, counting, and visualisation by moving small beads on some rods which represents your 5 fingers on each hand. The abacus is how we now have calculators with numbers and bionic calculators, pocket slide-rules, electronic calculators and the calculator you see on devices, was developed with the same logic.

Flying Money

ESF Beacon Hill School, Wong, Isabella – 9

China is one of the countries in Asia, it has a population of 1.4 billion people and has a very long history. Many people know that China has a lot of famous inventors, they also have great inventions and architecture, such as the Great Wall, Forbidden City and the Shanghai Tower. A century ago, Chinese inventors developed four important and intelligent inventions which are the compass, printing, paper and gunpowder.

Many of these inventions are substantial, intelligent and helping people daily. Starting from the pandemic period, digital wallets have become a very important role to people's daily life. Can you imagine that payments can be transferred really quick, fast and super hygienic because you don't have to touch actual real money. Paying with a digital wallet can just be a click of the button on your phone. Chinese inventors developed a lot of digital wallet application such as Alipay, WeChat pay, Octopus and Tap & Go. All these applications can be installed through a phone, and you can easily have an auto payment just by moving your finger. When you shop at a supermarket you don't need to wait in a line, and you can just go to the self-checkouts and use your digital wallet to pay. The self-checkouts are a great idea, people could quickly decide what they want to use to pay because no one has to ask you what you pay with. Also, the markets will be less crowded because a lot of people now can move faster for their payments. When you are at the restaurant you can just use your phone to place your order, so you don't need to call a waitress over. You only need to turn on the barcode scanner to scan the order barcode, then you order your food on the website, and you can customize your food according to your needs and favorites. When you drive a car and go through the toll you can use a digital auto passing toll payment when you pass. Auto tolls is an amazing idea because it would be less common for a line to form and for people who are in a rush. All cars will not have to stop to pay the toll and that can decrease accidents to occur as well.

These are all great inventions, but many of these still have disadvantages. The digital wallet, this is known as a very good idea. As we all know if you need to install a digital wallet applications, you have to input a lot of personal information and your bank account information. Can you imagine that if you lose your phone, it is risky because it will disclose all your personal information to other people, and they can use this info to do illegal things. Secondly people can access your bank account and steal your money. Moreover, when a lot of industries use self-checkouts machines, they will hire less people at work, many people will lose their job. If people do not have a job, they will not have money and they can't support their life. Lastly, mobile phones batteries are very unstable and runs out very fast, if your phone is out of battery, you cannot use all the

applications on your mobile phone. When there is an emergency, you cannot do anything, and you will fall into a very risky situation.

To let people have more confidence of using a digital wallet, developers could write up a better program to protect people's personal information. They could also build up a better antivirus security program to block viruses from going into your mobile phone. Secondly if we could use our fingerprint, Face ID and passcode to pay for your purchases you don't need to take your phone out in public, so no one can steal it, and if you left your phone at home you don't need to worry about that because you can use all the above to pay.

As a conclusion, China's inventions were not only benefited the people living in China, but it has also been used all over the world in the past and to the future. All these inventions influenced the world and improved people's life. As a young generation, we should keep being curious and creative, which to create and develop new inventions to improve our living quality.

From 2D to 3D

ESF Beacon Hill School, Wu, Jackson – 10

People worldwide write, print, and carve to keep their ideas, experiences, and records of civilization. Egyptians marked on pyramids, and Arabians created the most popular numbering right now. In China, the four great inventions are paper, gunpowder, woodblock printing, and compass. Two of the four are about record keeping, and they affect each other in the history of evolution.

Material-wise, Chinese people started with turtle shells in the 17th century BC while they had to carve on them. Bronze and rocks were carved on as well after 650 AD. Afterward, bamboo was cut into thin slips as a key record-keeping material, and accordingly, people could either carve or brush ink on it. Things were getting easier as it saved our power to hand-write instead of carving. Silk was in the game too, but less popular due to its high cost and rarity.

Finally, China invented the modern writing material, namely paper. Ts'ai Lun invented it in the 2nd century AD. This invention was way better than bamboo because paper is lighter to carry and bendable while bamboo still looks so big when you roll it in any way.

Then, in the 7th century AD, woodblock printing was invented, which was great because you could print so many paper copies with one carved woodblock. For example, words stick out from a piece of wood after the carving, then you need to brush ink onto the raised words, and finally, to put paper on the wood and press it hard, so that hundreds of words would be printed on altogether in seconds. I like this printing technique because it improved efficiency back then.

This was only the beginning of 2D printing, and it went beyond when people were deeply annoyed by mistakes on the very last word that ruined the whole block. So Bi Sheung invented a moveable type. This was an improvement because you could stamp the words on paper in any order and the words were reusable. And the problem of carving on big woodblocks had been solved! Bi Sheung made the blocks small and there would only be one word on each block so that if you made a mistake on one block when carving on it...well, at least the entire thing doesn't go to waste, does it?

Almost 400 years later, 2D movable printing further evolved when Johannes Gutenberg invented the first modern printing press in France in the year 1440. From his childhood, he had already seen wine and olive presses. By and by he learned how to polish stones, became a master goldsmith, and also acquired the expertise to create lead molds used for making trinkets. Using this knowledge, Gutenberg adapted the existing technology to design his creation.

Nowadays, when we turn the pages of this long-lasting but greatest Chinese invention into a new chapter, 2-D has been developed into 3-D, which has been changing the world in a disruptive way. 3D printing is part of a process called additive manufacturing, where an object is created by adding material layer by layer, and Chuck Hull and his company invented this in 1983. Now, you can easily build a fully functioning house in just 3 days with the help of 3D printing, or even scan a body part and 3D print it out to check your health!

Unlike 2D printing which creates flat records on paper, 3D printing is a type of printer that can print models and even functioning things, i.e. objects of weight. Many things you see today, from functional cars to even edible food, can be 3D printed! 3D printing work starts from digital 3D models in CAD software, then, you have to arrange them

into layers. Afterward, you can just leave it to the printer to do the rest. Some 3D printers use lasers to cure liquid resin into hardened plastic, while others fuse small particles of powder at high temperatures or melt plastic filaments to build parts.

3-D printing has a few benefits. Firstly, you can create any model that is in your mind, anything in a model shape. Secondly, it is very easy to access and to program the model now that it has guides and lessons on websites and videos. Lastly, the design and production are swift. If you build a house, it would take 7–12 months to finish, but if you consider printing a house instead, it would only take around three days. Now that 3-D printing prevails, you can make copies of famous sculptures and put them into different museums.

Applications for 3D printing include construction, prototypes, research, etc., which play important roles in various situations. For example, architecture is important when it comes to the Kakuma Refugee camp. There, people can create fast, flexible but sturdy structures.

You might wonder what is the difference between just building it on construction sites and 3D printing it directly. Apart from the waste of materials and energy, construction sites produce a great amount of dust. To my knowledge, China is widely applying this technology in the construction industry, and people are building a lot faster!

Earlier this year, I happened to come across a 3-D printing class in my after-school academy. Through the windows, I saw 3-D printing models on display. There were many things like truck models, tower models, etc. On top of these, I was amazed by a model of Albert Einstein's head, with every part of a human face on it. It was great because not only the student went through the complicated process into realistic edits, but also it was vivid.

When I grow up, I wish to live in a 3-D built home and I want to own a printer myself to 3-D print a museum where I can store 3-D printouts, for example, one piece anime character models.

Robotic Restaurant in China

ESF Discovery College, Saxena, Agastya – 8

Welcome to Foodom Restaurant, a robotic culinary experience located in Hang Zhou, Zhu Jiang, China developed by Country Garden. The restaurant is operated by 46 types of robots and is definitely worth coming to!

Upon entering Foodom Restaurant, customers are warmly greeted by robot waiters. They guide customers to their seat, recommend specials of the day and take peoples orders by using an AI–Powered System. The versatility of the robots allows them to perform a wide range of tasks, executed flawlessly and repeatedly throughout the day.

In the kitchen, an impressive number of robots are responsible for cooking and preparing dishes, which are then delivered to tables via a conveyor belt. Interested customers through glass window separating the kitchen and restaurant can observe their meal be prepared by robots. According to Gizmo China, ten Shunde chefs have trained the robots using computer programs that instruct them on temperature control, ingredient selection, and cooking times. These programs are continuously refined to ensure a high level of precision.

Renowned Chef Lin Chao gave the restaurant a consent full nod after sampling the robotically–prepared dishes, noting that the standardized computers used in Foodom’s robots can achieve a level of food quality superior to human chefs. Another chef, Ma Huiliang, awarded a score of 90 out of 100 to a fried vegetable dish cooked at Foodom, and mentioned robots cooking is a liberal opportunity for the chefs, furthermore with robots handling the cooking tasks, chefs can focus on innovation and research, further enhancing the realm of culinary possibilities.

Established in May 2019, the Qianxi Robotic Catering Group Subsidiary, backed by the Property Giant Country Garden and its 750–person research and development team, has successfully created a system utilizing 70 different robots across five distinct restaurant styles, including hot pot, fast food, Chinese cuisine, clay–pot, and rice and noodle shops. With the help of the system and advanced robotic technology, “labor shortage” faced by industry can be lessened. Qiu Mi, assistant president of Country Garden Group mentioned efficiency of staff management and employment cost reduction can be improved by management and control.

In conclusion, Foodom Restaurant, with its innovative concept and cutting–edge technology, has revolutionized the dining experience by introducing a robot–driven restaurant. The integration of robots has not only enhanced efficiency and accuracy but has also created a unique and memorable atmosphere for customers. The sight of robots gliding across the room, gracefully delivering plates of delicious food, creates a sense of wonder and excitement for customers. This unique setting appeals to both tech enthusiasts and those seeking a memorable and out–of–the–ordinary dining experience. The integration of robots has not only improved efficiency and operational performance but has also created a unique and captivating dining experience. Foodom Restaurant stands as a testament to the potential of technology in transforming the way we dine, and it is poised to inspire further innovation in the industry.

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Gunpowder : Evolution to obsoletion

ESF Glenealy School, Chaki, Adhiraaj – 10

Gunpowder is one of the Four great inventions coming out of China. Ironically, gunpowder was invented in 9th century China by Taoist alchemists who were trying to craft a potion for immortality, who instead created one of the biggest breakthroughs in weapons technology. Its first use in warfare dates back to around the 9th century. However its modern day use has declined to a halt, due to more efficient methods, leading only to small use in fireworks.

Following its invention in China, gunpowder has a long history with many subsequent inventions and innovations. Traveling through the Silk Road, gunpowder influenced the development of every military in Eurasia throughout the Middle Ages and beyond.

Over time, many changes were made to the initial formula of gunpowder. As my research details below, on some occasions the proportions of the basic ingredients were altered and in some other modifications, new ingredients were added.

Pre Gunpowder – 300 AD

It was in this period of time that the initial concept, ingredients and recipe was written down by Taoists in China in a book called the *Can Tong Qi*.

This book stated that when three ingredients are combined, a powder that can dance and fly violently was formed. The recipe was unintentionally created when the Taoists tried inventing the elixir of life. This basic formula consists of Saltpeter, which would combine with Sulfur and Carbon.

9th Century

During this century the recipe for the powder was solidified into 6 parts Sulfur, 6 parts Saltpeter and 1 part Birthwort herb. This century saw gunpowder move into weaponry with the Fire arrow. People now realized that gunpowder was dangerous. This was mentioned in the Taoist text “*Zhenyuan Miaodao Yaolue*” which states that gunpowder causes fire to violently erupt, followed by smoke blooming everywhere.

10th Century

The 10th Century saw big changes – the Fire lance (ancestor of the firearm) and also the slow match recipe. The slow match was used by flame throwers because of slower burn time. With time, this would evolve into the modern day fuse, leading to slower and more controlled ignition sequences. The Fire arrow allowed the Song Dynasty to have superior defense especially when the Liao Dynasty attacked, leading to its popularity.

11th Century

More weapons were invented during the 11th century including bombs and crossbow rockets. Gunpowder weapons were given to soldiers in higher numbers, making the Fire lance and Fire arrow the staple weapon. The first chemical gunpowder recipe was also written during this time in the *Wujing Zhong Yao*. Due to its efficiency, gunpowder's export was banned by the Song dynasty.

12th Century

This century brought in an improved version of a firecracker, with it taking off into the air before the explosion. The first type of artillery weapon was also developed with the primary goal being to arm ships. This was one of the earliest battleships to be ever made, making this one of the biggest leaps in sea based warfare technology. The earliest depiction of a cannon was also conceptualized at this time.

13th Century

This era saw newer and upgraded weapons come out such as the Fire lance's new reusable metal barrel & the bomb's new outer shell. One of the major improvements include the Fire Lance's new projectile – one of the first guns ever. Rockets were now getting deployed leading the Mongols to spread gunpowder to Japan, Southeast Asia, Europe and the Middle East.

14th Century

The 14th century brought in the addition of Rocket launchers, Land mines and Naval Mines. Also, the rest of the world was starting to catch up by the later half of the 14th century. Carriage mounted iron cannons also came into existence. Europe caught up with China on the weaponry front with an early version of the canon.

15th Century

Europe started to make larger and deadlier wheel driven cannons. In addition to that, Europe evolved their own version of the slowmatch for the cannons which were now appearing throughout Europe. Also in this century the matchlock firing system with a trigger mechanism was invented. Rifled barrels became the standard for any type of gun. The Chinese used their rockets and bombs to fight with Korea and Japan effectively.

16th Century

During this century matchlock firearms found their way all over Eurasia, reaching China and Japan. The Volley Fire technique was implemented into matchlock firearms by the Ottomans, Ming Dynasty, and the Dutch Republic by the end of this century. The Wheel Lock and Flintlock trigger mechanisms were invented leading to the invention of Pistols and Revolvers. Ottoman troops started to attach bayonets to their firearms with both Europe and China developing handheld breech loading firearms.

17th Century

The 17th Century saw the spread of bayonets throughout Eurasia as well as the new edition of paper cartridges which are the ancestors of modern day bullets. The 17th century brought in the most efficient type of Flintlock yet, replacing the Snaphance Flintlock. During this time China and Japan reject using flintlocks while in the west, Europe starts using gunpowder for industrial uses. Europeans also started to experiment using composite metals for their cannons.

18th Century

In Europe Flintlocks completely replaced matchlocks and Sir William Congreve the 1st Baronet invented the Cylindrical Powder which was also the final change in gunpowder's chemistry. The kingdom of Mysore deploys Mysorean rockets as their main weapon. Also in the 18th century, the first scopes were developed which basically were telescopes mounted onto the gun.

19th Century

In Europe the invention of smokeless powder marks the beginning of the end of gunpowder. Sir William Congreve the 2nd Baronet makes the British version of Mysorean rockets, the Congreve Rocket. Joshua Shaw invents the percussion cap which is the modern trigger mechanism. Rifles start replacing muskets as the Maxim Gun is invented, the world's first machine gun. Alfred Nobel invented Dynamite, an absolute game changer.

20th Century

Most gunpowder is replaced by smokeless powder, ending the glorious gunpowder age with its use remaining in small fireworks.

The Dawn of Paper

ESF Glenealy School, Mithaiwala, Burhanuddin – 10

The city of Lie–yang was bustling like bees in a beehive. The vintage city was full of historical artifacts. Ancient temples guarded the city. But that is not the reason our story is settled here. This village is the dawn of paper...

Smart Zhong and timid Carta along with chubby Kaagaz were on an excursion in a heritage paper museum.

Zhong: “Examining the exquisite paper models, aren’t they fabulous!”

Carta: “Absolutely! These art pieces are extravagant.”

Kaagaz: “Have you ever pondered how paper was fabricated?”

Carta/Zhong: “Do you have any awareness about the journey of paper.”

Kaagaz: Indeed! This amazing history in “AD 105 is frequently cited as the year in which paper making was invented. The latest archaeological investigations place the verified invention of papermaking some two hundred years earlier. Ancient paper pieces from the Xuan Quan Zhi ruins of Dunhuang in China's northwest Gansu province were manufactured during the span of Emperor Wu who reigned between 140 BC and 86 BC.”

Zhong: “I wonder about the first piece of paper made in China?”

Kaagaz: “You will be astonished to know Zhong, early Chinese paper appears to have been made from a suspension of hemp waste in water, washed, soaked, and beaten to a pulp with a wooden mallet. A paper mold, a sieve of coarsely woven cloth stretched in a four–sided bamboo frame, was used to dip fibre slurry from the vat and hold it for drying. Eventually, tree bark, bamboo, and other plant fibres were used in addition to hemp.”

The intriguing conversation between boys caught the attention of the grey–haired museum curator who offered to share his deep knowledge on this topic.

Curator: “The earliest real advance in papermaking came with the development of a smooth material for the mold covering, which made it possible for the papermaker to free the newly formed sheet and reuse the mold immediately.” Furthermore, other papermaking includes the use of starch as a sizing material and the use of a yellow dye which doubled as an insect repellent for manuscript paper.”

This outstanding invention has helped the advancement of education and communication in our society. Without paper the world would be vastly different as we see it today – books would not have been created, drawings would have been different and writing skills would be non–existent. It would have been hard to receive education and keep records of one’s belongings.

With its invention literary creativity and written culture flourished. It was convenient, affordable material for preserving writing.

Paper also had an influence on history. Many events were recorded in written formats and people began to show interest in the past human life. The enthusiasm about past life unravelled many unknown mysteries.

Science and technology also made spectacular gains. Formula and theories began to be written on paper. Books and journals on science and technology were later preserved by the scientists for future reference.

Kaagaz: “Most of us do not value paper. Soft dry paper at your desk ready to be used is prepared after a lot of arduous work. Recycled paper must be transmitted over five hundred meters to become a high-quality paper anew. The same paper will find itself at another desk.”

Carta: “Hey, look at the ancient carved wooden block with ink on it, what could it be.”

Zhong: “Maybe a plaything!”

Carta: “I think it is to help people learn Chinese”

Kaagaz: “To me, this is a food container!”

The three friends erupted into laughter.

Curator: “This ‘Food container’ is an old model of printer.

In the ninth century, Chinese craftsmen had developed a way to produce books by carving words and pictures into wooden blocks, inking them, and then pressing paper onto the blocks. Each block consisted of an entire page of text and illustrations. “This is the first version of ink printing.

Kaagaz: “This was also invented in China! I must say this is the ‘Land of Inventions’

Curator: “It lowered the price of books, thus helping the spread of literacy. Inexpensive books gave a boost to the development of drama and other forms of popular culture. It quickened the spread of knowledge, discoveries and literacy and became essential to how humans communicated. With the invention of printing the process of copying was accelerated and within a few years writings covered a great part of the public thanks to the dissemination of knowledge and the decrease in production costs.

The storytellers depicted in the Beijing Qingming scroll may have benefited from ‘prompt books’ that would help them review the stories that they told orally to their audiences.”

“So how did a piece of carved wood turn into our modern printers? murmured Kaagaz inquisitively

Curator: “In the 11th century movable type (one piece of type for each character) was invented by Bi Sheng. He used baked clay, which was very fragile. The Yuan-dynasty official Wang Zhen is credited with the introduction of the wooden movable type, a more durable option, around 1297.

Before the boys knew they were heading for the exit of the museum. They were extremely thankful to the curator for his insight.

Cashier: “You boys bought some wonderful artefacts. That will be \$ 58.50.”

Zhong gave \$ 60. As he was receiving change, the blue eyed Zhong stared at the notes. A thought popped into his mind.

Zhong: “Guys, have any of you wondered how paper money was created?

Before Kaagaz could reply, Carta boastingly responded,

Carta: “Paper money was created around the ninth century CE. Its original name was ‘flying money’ because it was so light it could blow by a gust of wind. It was used as certificates for merchants to trade. Government later used money to collect taxes. Paper money was then used to exchange which was backed up by deposit cash (metal coins). This style came in use near the tenth century.”

Kaagaz: “Carta, paper money was also created in China. Wow, they have made magnificent inventions “”

Carta: “Their innovations are remarkable.

Carta: “The first paper money was called jiaozi. As the Chinese dynasties fell and rose, jiaozi took the form of yuan. Soon China’s yuan spread all over the world. Nowadays each country has its own currency.

Kaagaz: “China has created something which has helped human civilisations over many centuries. But we humans are wasting paper. Each year humans waste approximately one billion trees worth paper. Wasting paper not only affects humans, but animals and Earth. Hopefully, we can come together to utilize this invention in the right proportions to protect the planet we call HOME.

Zhong: Guys, want some junk food? I brought a few pennies.

Carta: Sure, hopefully our moms do not mind!

The three friends ate a few scrumptious candies, but when they returned home...

Kaagaz’s mom: Boys what have you been eating?

Kaagaz: Uh oh.

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Best Chinese Invention: PAPER

ESF Glenealy School, Oladokun Piguillem, Sade – 10

1.– History of paper

Paper is made by combining milled plants and textile fibers.

Chinese inventions were needed at some of the times but paper was needed all the time. '

Some believe that papyrus was the first paper used to write in Egypt, but the truth is that papermaking was invented in China more than 200 years ago, during the Han Dynasty in 105 CE by Ts'ai Lun, also known as a court official.

Lun was famous for inventing paper.

2.– The inventor: Ts'ai LUN or Cai LUN

The inventor of paper was Ts'ai Lun. Ts'ai Lun was born in the Eastern Han Dynasty in 50 AD and was also raised by a poor family. Tsai lun,s courtesy name was Jingzhong. Sadly he died when he was 71 years old in 121 CE. When Ts'ai Lun died everyone had a memory of him and that is why he was really famous back then. Cai Lun was 55 when he invented paper.

People who lived before 105 CE used bamboo as paper of course they did not discover paper until Ts'ai Lun invented it.

When bamboo and silk was used as a form of paper, Ts'ai Lun decided to make paper because paper was lighter than bamboo and cheaper than silk.

3.– The process

The process of making paper is:

- 1.– First you have to mix mulberry bark then mix hemp and rags with water
- 2.– Next Ts'ai mashed it into pulp
- 3.– Last step he pressed out the liquid and hung the thin mat to dry it in the sun and this part took some patience and that is how they made paper in the olden days.

What is needed for the process is :

- (1) Patience
- (2) Strength
- (3) Plants
- (4) A lot of rare material

And it included a lot more which is why people use it so much because now they paper instead of bamboo and silk.

On the next page you will now understand the real uses of paper.

4. – Uses

These are some uses for paper

- (1) Printing
- (2) Writing
- (3) Packaging
- (4) Toilet paper
- (5) Doodling
- (6) Tickets
- (7) Newspapers
- (8) Money
- (9) Cheque
- (10) Cleaning

5. – The End

For me paper is the greatest Chinese invention because it led to the development of education, writing, drawing, science, printing and money. Paper is one of the best inventions also because it was invented really early in life so people found out the use of it.

China's Sweetest Invention

ESF Kennedy School, Ng, Gabriella – 9

Did you know that the world consumes 15 billion liters of ice-cream every year? This delightful treat is popular and loved by everyone young and old around the world for its sweet, creamy, refreshing taste. There are over 1,000 different ice-cream flavors and new ones get created every year. Some classic flavors include vanilla, chocolate, strawberry, cookies and cream, and mint-chocolate chip, while the more eccentric flavors include mayonnaise, foie gras, wasabi, lobster, curry, mustard, crocodile egg, and durian. Ice-cream has been catered to meet everyone's unique palate.

Most people think that ice-cream comes from Italy, but there is evidence to suggest that ice-cream was in fact invented in China in the Tang Dynasty in A.D. 618–907. It was made with buffalo, cow or goat milk, and it was heated and fermented. The mixture was added to some flour to thicken it up and camphor was added for flavor. It was then kept cool before being served to King Tang of Shang and his family, friends, and guests. Since refrigerators were not invented yet, the Chinese mixed salt with ice which lowered the temperature of a space to -14°C to temporarily store the ice-cream. Perhaps you are wondering how ice-cream made its way to other parts of the world to be enjoyed. Explorers like Marco Polo and Catherine de Medici brought ice-cream to their country, Italy and France, respectively, to share the magical experience with their countrymen. Since then, ice-cream has made its way into the heart of every continent including Antarctica. Ice-cream has even been eaten in outer space!

The very first ice-cream maker was developed by an American woman named Nancy Johnson in 1846. It was the first device to make it possible for the public to quickly taste freshly-made ice-cream. The sealed container held a metal bowl of cream or sorbet that got spun around with blocks of ice and salt and was ready to eat in 30 minutes. It must have been worth the wait, though! When electricity arrived in homes across the world, the electric version of the ice-cream maker was designed because ice-cream could then be stored in refrigerators. Ice-cream could now be kept for a longer period of time, thanks to the invention of the refrigerator. These days, ice-cream is made in massive ice turbines for mass production. It can also be made in the comfort of your own home for fun using tabletop ice turbines.

Ice-cream is not only eaten by humans; dogs, monkeys, cats, goats, lions, donkeys, horses, and cows have all been known to eat the scrumptious dessert. It is one of the easiest desserts to make without an ice turbine. First, whip up two cups of heavy cream using a hand whisk or electric mixer until stiff peaks form. After that, slowly add in a cold can of sweetened condensed milk. Then, add your favorite flavorings like vanilla or almond extract and whatever toppings you want to mix into your ice-cream like walnuts or chocolate chips. Mix and combine all the ingredients together and transfer it to an airtight container and freeze it. It is that simple!

Ice-cream is one of the most loved desserts on the planet. Ice-cream can satisfy all our sweet-tooth cravings. This delectable treat can make any bad day turn into an awesome day! China is responsible for inventing many things for example paper, gunpowder, compass, umbrella, earthquake detector, and toothbrushes. These inventions have proven to be useful, helpful, life-changing, and necessary. The invention of ice-cream by China has enriched many lives by creating joy, laughter, adventure, and lifelong memories. It has added value and sweetness to the world. Ice-cream is one of the best inventions from China – a cold, refreshing, sweet, and perfect food to eat on any given day!

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China's Inventions – Innovation and Development

ESF Sha Tin Junior School, Zhong, Sophia – 10

Papermaking, letterpress printing, gunpowder and the compass – known as the Four Great Inventions – have considerably changed the way our life operates today. Invented by the ancient Chinese, these inventions have no doubt contributed immensely to our present society, but in different countries, their usage and development vary greatly.

For instance, in fifteenth century Europe, children's education was largely influenced by social status, the dominant role of the church, gender inequalities, and the fact that they were constantly on the verge of war. Education was primarily accessible to the privileged elite, such as the nobility and wealthy landowners. The majority of the European population consisted of rural peasants that had limited access to a means of a formal education. During that time, before the printing press had spread to Europe, each copy of a book was carefully hand-written, or each page was carefully carved into a large slate of wood, which made the process long and laborious. It meant that only a few books could be produced in a day, which made the books overwhelmingly expensive, therefore inaccessible to the poor.

The arrival of letterpress printing changed everything. Each word was carved and could be used in another book. It made the making of a book significantly easier, rendering them more affordable for the larger part of the population, which helped make their education more accessible. This prompted the start of the Renaissance and promoted the importance of science in Europe.

In Ancient China, on the other hand, the changes that China's own inventions brought were not as substantial. For example, in 1820 to 1913 China, only 3 books were shared within one million people, Holland was 538, England was 198. At the time, not only were there few books to be read, women were not allowed to have a basic education, and instead had to stay at home and focus on housework. It didn't help that the range of characters in the Chinese language were vast, which made it difficult to print, affecting the speed at which knowledge was acquired. Ancient China's society and cultural climate largely influenced how China's inventions affected its population.

Now, In modern China, as the economy develops and people's approval for newly advanced technology increases, the usage and popularity of new inventions increases as well. Mobile-payment, e-commerce, bike-sharing, and the high-speed rail — These inventions have had a great impact on the development of Chinese society and brought great convenience to the daily lives of Chinese people, which is why they are known as the “new” four great inventions of China. We definitely need to admit that in China these inventions have become part of our daily life. But in truth, none of these inventions actually originated in China. For example, bike-sharing stations first appeared in the Netherlands, and the high-speed rail was invented by the Japanese. The “new four great inventions” have been popularised in China, but China lacks original innovation from before. In a way, Ancient China was the opposite of modern China: Ancient China invented many helpful devices but didn't focus on their development. On the contrary, modern China used and developed many new inventions but required more originality. Both correct usage and new innovations are important in order to correctly devise an invention that could change our lives.

Here is an example that demonstrates this prospect: As we all know, AI is one of the greatest inventions of modern times and a direction we could develop toward in the future. In this field, innovation and especially correct management are the two most important things. For instance, if used incorrectly, it could be a threat to the

educational system, as students could use it to cheat just by giving it a few keywords. On the other hand, AI could help us accomplish many aims we have for the future.

I believe that in order to achieve this goal, we need to pay further attention to basic subjects such as mathematics and physics, because these two subjects involve knowledge of computer hardware and software, as well as the development of big data processing capabilities. Research on basic subjects is very important to the development of advanced technology.

In addition, we need to cultivate new talents, and leave a relaxed legal environment for innovation without affecting safety. Furthermore, we could take advantage of China's large population and high efficiency and improve the way we use inventions and innovations in production and life to create a better future for us and the next generations.

World's Greatest Inventor

German Swiss International School, Ding, Matthew – 9

From paper to fireworks, China definitely wins the cup of The World's Greatest Inventor.

Just start with rice, the essential food we eat almost everyday. It was unearthed from the Yangtze River in China almost 9,400 years ago. Just a bowl of plain food holds a big history of hundreds of centuries ago.

Do not forget paper, the item we depend on every single day. The first true paper making process goes back to the Eastern Han Period, which was 25 to 220 A.D.. It was found as a paper prayer then as a blessing on an adobe block on someone's home. The first paper in China was made by fishing nets, bamboo, mulberry bark, or hemp. There was such a complicated process just to create paper back then. Today, all you have to do is turn on a machine, set the panel to the size, shape you like and Voila! You have your precious piece of paper. Nowadays, many people use paper too much. They have not put the slightest thought of how precious paper was back then in their hearts.

Think of the compass now. If it weren't for China, people might have thought that the sun would rise in the south and go down in the east. And without the compass, people might've accidentally sent a ship going to Hong Kong but ending up in Shanghai.

Also think about the lovely fireworks when celebrating festivals like New Year. If not for China, the lovely colours in the sky wouldn't even be there to enhance those 'oohs' and 'aahs'.

Imagine those few things just written, they are more than common to see today. But they were all made by one single country, China.

Who's hungry for some noodles? Well, you'll find lots from China. Although not exactly known, udon and soba are said to be both invented in China. It is believed by some people that these noodles originated from Japan. Well, that is incorrect. Udon and soba both originate back to the 700s in China, but soba only gained popularity in 1700.

Do you eat McDonalds these days and put ketchup on your fries? Well, if you do, then say thank you to China. It was called "keh-jup" or "koe-cheup," meaning "fish sauce, back then. The first ketchup recipe included neither tomatoes, vinegar, nor many other ingredients that make today's ketchup. The first base of the sauce was fish, then oysters, mushrooms, and only after that, which is today, ketchup is made of tomatoes.

Now let's discuss Douyin. Douyin is an app which originates from a China company. It is similar to TikTok, but it only works in China. Even though it only materialised in September 2016, Douyin has better functionality than TikTok.

But that's not just it yet. There are hundreds of inventions not described above waiting for you to discover. And there definitely will be more in the future too. When there's already high technology apps today, there may be self-driving cars tomorrow.

All About Gunpowder

German Swiss International School, Luan, Zyan – 9

Introduction

Hello everyone! Today we're going to talk about gunpowder. Gunpowder is something that is used in many different things, and one of China's top four historical inventions. Let's learn all about it!

What Gunpowder Can Do

Gunpowder has many uses, both for peaceful and not-so-peaceful things. For peaceful purposes, gunpowder is used in fireworks. You know those beautiful explosions of colors and lights you see in the sky during celebrations? That's gunpowder! But gunpowder can also be used for not-so-peaceful things like bombs, which are really dangerous.

How Gunpowder Was Discovered

A long time ago, there was a person called an alchemist named Wei Boyang. He lived during the first millennium AD. One day, during the Tang dynasty in the 8th century, Wei Boyang mixed sulfur and saltpeter with charcoal. And guess what? It created a powerful explosive called gunpowder! It was a really important discovery.

How the Chinese Found Out About Gunpowder

Wei Boyang, the alchemist, mixed sulfur and carbon with a special compound called saltpeter. He didn't know what would happen, but it turned out to be a big surprise! Saltpeter has three elements: potassium, oxygen, and nitrogen. When these elements get a lot of energy, they break apart. When the sulfur and carbon were set on fire, they ignited and created a super-fast and powerful shock wave that traveled at 200 miles per hour!

The Power of Gunpowder

Gunpowder can be incredibly powerful. It can destroy whole buildings with just one hit! But it can also be very weak and not able to break a stone. Did you know that the world's strongest explosive is called Azidoazide azide? It has a really long scientific name, 1-Diazidoocarbonyl-5-azidotetrazole. It's made up of a special compound that has 14 nitrogen atoms. Because of all those special nitrogen bonds, this explosive is extremely powerful, even if you leave it alone on a plate without touching it!

Conclusion

Gunpowder is a fascinating thing that can be used for both good and bad. It was discovered a long time ago by an alchemist named Wei Boyang, and it can create amazing fireworks or cause destruction if used improperly. So, remember, gunpowder is something that needs to be used very carefully and responsibly.

New Tales of China's Inventions

German Swiss International School, Saxton, Ella – 8

Paper crafting, fireworks, wheelbarrows and the compass. It all came from China. China has been making inventions since the beginning of time, that's for thousands of years! China has invented much more than you think, they even invented kites and umbrellas, which we still use today.

Long, long, ago the Chinese were mainly known for their temples with long walls around them, but China has made so many inventions since then. Some you can eat, and some were even stolen! They made noodles, and then later, the Italians made spaghetti pasta and they said they made it first! China also invented ketchup, but it feels like everyone thinks it came from America because they eat so many French fries with it. People also think French fries came from France, which is not true, but that's a whole other story.

On to the most spectacular and dazzling invention. It was believed that the first natural firecrackers were bamboo stalks. When thrown in fire they would explode with a bang, because of the overheating in the hollow air pockets. This gave the Chinese an idea. Then during the 9th century, gunpowder was invented by China. Gunpowder is made with 75% saltpetre, 15% charcoal and 10% sulphur. Many people love fireworks, except for dogs and babies that is, but what exactly goes into the making of fireworks? Fireworks are a lot more than an explosive bomb in the sky, they are chemicals made for special celebrations.

So, let's take a look at the colours of fireworks, because the patterns they can make are unbelievable. Think of Disneyland and Chinese New Year in Hong Kong! As you likely expected, the firework bomb in the sky creates heat, that heat reacts with different chemicals they put inside the fireworks, which makes different colours.

People with amazing skills can mix them into marvellous patterns. In the 19th century fireworks were used for European celebrations, however before long, people began putting firecrackers on a bow and arrow so in war their enemies would see the fireworks in the sky and get afraid then retreat.

Another great invention for the Chinese was the clock, which is very old indeed, and think about how many people wear watches today! How did they even do it, so long ago!

I hope you know more about China's inventions now.

What do you think they will invent in the future? A pollution eating machine, flying roller coasters, rockets to Pluto?

The Modern Uses of Porcelain

German Swiss International School, Song, Shawn – 11

Beginning in around 1600 BC, the Chinese developed a special ceramic that was durable, non-porous, heat resistant and was light compared to metals. This material reigned supreme above all other ceramics for many thousands of years, being highly valued all across the globe from Japan to Britain. It fetched massive prices and was regarded as a miracle material, it was porcelain.

Many people think of porcelain as the material that is used to make teapots, or the material that they use to make their vases or bowls. A few metallurgists may even think of it as the material for their crucibles, but the uses of porcelain are much more expansive nowadays, ranging from rocket nozzles to heat shields and jet engines.

How are these materials in modern industries even connected to porcelain? Well, the answer is simple. They are all built up on porcelain's natural anti-corrosive and heat resistant properties. All in all, porcelain is the ancestor of a slew of modern day ceramics. Two typical examples are ceramic matrix composites (CMCs) and ultra high temperature ceramics (UHTCs).

First of all, how are these curious materials manufactured? CMCs are essentially just layer upon layer of thin materials, such as ceramic fibers stacked together. That's why they are classified as *composite* and *matrix*. The thin fibers are then stacked into thin sheets and cut according to the required dimensions, lastly, they are fused together in an autoclave. The end result is a light, and heat resistant material that can bear temperatures up to 2000°C. This allows them to be used in many places, such as jet engines! The following qualities provide even more evidence:

- They are $\frac{2}{3}$ lighter than other metals,
- They can withstand 20% more heat than regular alloys,
- They rank at a level 9 on the Mohs scale – same as tungsten but substantially lighter.

To better understand the advantages of CMCs over alloys, we must use a comparative. Take porcelain and tungsten as an example. 1 cubic meter of porcelain weighs 2,403 kilograms, while 1 cubic meter of tungsten weighs 19,280 kilograms. Even though porcelain rates in at only 7 on the Mohs scale, it serves as a useful comparison. The practicality of ceramics is also shown through a slew of engine models. Take the General Electric Adaptive Cycle Engine as an example, it features 25% better fuel consumption than earlier aircraft, and above that it has reached 65°C above the target temperature, all because it featured the most expansive use of ceramics ever in aviation history. Also, for the new Gen 90 GE engines, they were to feature 325.12cm turbine blades, but there was a problem, titanium was too heavy and would damage the engine. The solution was to turn to ceramic blades. Consequently, this innovation gave the engine the Guinness World Record with over 57,000 kilograms of thrust! All this makes CMCs the most promising material for the future of jet engines. But why stick to earth when UHTCs can take you to space!

Since UHTCs can withstand even higher temperatures than CMCs, often upwards of 2000°C, they are widely used in the space industry. They protect important scientific equipment and moreover the astronauts' lives. Ceramics in the space industry have 2 primary uses, the first being in rocket engine chambers and nozzles, with the second being in the heat shield area. With rocket engines having temperatures that reach up to 3300°C, cooling systems are a must no matter what material you use, but with lighter and more heat resistant material, the overall weight would be reduced and the cooling systems would not have to be so sophisticated, also resulting in less weight. This overall

causes overall costs to be lowered. This in turn would cause prices to be lowered and more importantly, the extra space could be used to add more fuel, increasing the range of rockets.

The other, arguably more important reason is heat protection during atmospheric reentry, as the temperatures during re-entry can reach up to more than 2700°C. The primary heat protection material in almost all spacecraft is various types of lightweight UHTCs, as they can withstand temperatures of up to 3958°C (Hafnium Carbide). UHTCs are a great choice for this as they are durable, lightweight, can withstand great amounts of heat and melt away slowly, ensuring that the astronauts and scientific equipment and data remain safe and sound. Another surprising reason is that UHTCs are corrosion resistant, that may not sound like much, but a single error can mess up the whole project. Take SpaceX's reusable rockets, just because 1 metal bolt corroded because of the salty sea air, the whole rocket blew up. UHTCs can also form non-ablative heat shields, such as those used in NASA's space shuttle program. Specifically, NASA used borosilicate glass (a glass ceramic) as a high temperature insulator on the bottom side of the space shuttles which withstood temperatures up to 650°C to 1260°C. The highest temperatures in the space shuttle are again absorbed with ceramics, this time with a reinforced carbon alloy that withstood temperatures up to a whopping 1650°C!

We can draw from this that ceramics are a very potent and useful new resource, just waiting to be explored. We can use ceramics for vastly different uses, and ceramics all excel in those scenes. Using ceramics as teapots and bowls is like making Albert Einstein do your math homework, it just is a waste of a massive innovative new material. Ceramics is the iron of the stone age, the computer to pre – cold war mathematicians, the telescope to medieval astronomers, ceramics are a new, vast frontier just waiting to be utilized and explored.

Chinese Space Program

German Swiss International School, Wong, Jayden – 11

Many people know about Chinese inventions, such as the compass, paper, gunpowder and silk, that have made their way to every corner of the globe. However, relatively few people know about China's contributions to space research. Ever since China invented rockets in 228 AD by igniting gunpowder, the country has achieved many firsts in space exploration and is dedicated to making further advancements in this field.

China's space program started small, established by a renowned Chinese rocketry scientist, Qian Xuesen. When Qian returned from America in 1950, he asked the government for permission to start a missile tech center. They quickly responded with a big yes, and China's space program was born. At this point, it was the Cold War, and China was on very good terms with the Soviet Union. So, the Chinese got in touch with the Soviets and said something along the lines of, "Hey, think you could spare us a few inter-continental ballistic missiles?" and the Soviet Union replied, "Sure, take two R-2 missiles."

As the Cold War continued, tensions developed between China and the Soviet Union over borders, nearly causing a nuclear war. The end of their friendship obviously meant no more lending of advanced technology; therefore, the mission to launch the missiles was postponed.

However, when the Soviet Union managed to launch Sputnik I in 1957, Mao Zedong, in his own little Space Race with the Soviets, decided that China should launch its own satellite by 1959 to celebrate the tenth anniversary of the PRC. Unfortunately, this goal was too ambitious, as China still had the thorny problem that it didn't know much about launching objects into space. Therefore, the Chinese decided to focus on a new target: launching a sounding rocket, which is a rocket that flies into space, releases a satellite and then comes back down to earth. China saw sounding rockets as a stepping stone to ultimately getting its own satellite into space.

After many failed attempts, the sounding rocket T-7M finally made a successful liftoff and reached a height of 8 km. Mao Zedong praised the success, calling it a good beginning for the Chinese space program. Remember those Soviet R-2 missiles? The Chinese soon managed to launch one of those using a fuel of liquid oxygen and alcohol, naming the missile Dongfeng-1 (The East-1). They then started working on what would be the first 100%-Chinese built missile, Dongfeng-2. After many rocket test trials and a failed launch attempt, Dongfeng-2 achieved its first successful launch on 29 June, 1964. As part of China's nuclear ambitions, Dongfeng-2A, an improved version of Dongfeng-2, successfully detonated a nuke at its target in a desert. It's important to note that this operation was just to develop nukes and satellite tech. No population was targeted or harmed.

These are not the only rocketry advancements that China has made. On 24 April, 1970, the 173 kg Dong Fang Hong-1 (The East is Red-1) satellite was launched into orbit. It was the heaviest maiden satellite to be put into orbit by a nation. On 29 April, 2021, the Tiangong space station was successfully assembled in space. It is the second space station to be launched into space by a sovereign country, and with the ISS (International Space Station)'s decommissioning in 2030, it will become the main space station for use globally. The goals for the Tiangong space station are to develop spacecraft rendezvous technology, autonomous spacecraft and regenerative life support as well as achieve permanent human operations in orbit. Currently, China is also one of the most active nations in terms of space exploration, making the fifth most launches of any country every year.

Imagine it's the year 2182, and an asteroid is about to hit Earth, as NASA has predicted. However, thanks to space developments by the Chinese, the human race can settle on Mars. Consequently, the persistent quest to explore and conquer space hasn't been in vain. It hasn't been a straight trajectory upwards for the Chinese Space Program, but it's incredible to think that the tiny seed planted by Qian Xuesen in 1950 will have blossomed into such a massive and important project that will ensure the future of humanity.

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Modern Chinese Inventions

Harrow International School Hong Kong, Huang, Alex – 10

China is an amazing country. You might think that China just invented paper that we used today, noodles that was made out of dough, silk, the compass and gunpowder. But this is just an underestimate. They invented so much more! They invented the multi-stage rockets to online shopping, mobile payment to 3D printers that can print full-functioning houses, even the App TikTok was invented in China! Let's see some modern Chinese inventions.

Electric cars were one of the most important inventions China invented. Not only they are fast, cheaper compared to the gas cars when refilling fuel, quieter when accelerating and easier to drive. It can also help us battle against global warming. You see, the entire world is getting warmer by many reasons. One of them is emitting carbon dioxide (CO₂) into the air. This is called air pollution, and CO₂ is a type of gas that cars running on petrol emit out and into the air. This is why some people are switching into car brands like Tesla, BMW (electric car variation), and Mercedes-Benz (also electric car variation). They all make electric cars. But there is one electric car brand made from China called BYD. It is based in Shenzhen and founded in 1995. It started out as a battery maker company then later started to be the automobile business in 2003. BYD is also has a feature where they can wirelessly charge the car. And remember when I said about BYD starting out as an battery maker? Well since they are already experienced at making batteries, their electric car battery density is very high. This means they can store more energy. The car also has seven airbags. That's just one more then a regular car. BYD also can be charged by major charging networks for example some tesla chargers. Look how much of an impact a country could do to the world.

Not only electric cars can help us battle global warming. Bike sharing systems were promoted everywhere so people can go to work on Bike rather on gas cars if they can't afford electric cars. Founded in 2014, OFO was the pioneer of China's bike sharing industry. They invented lightweight, affordable and very sustainable bicycles. It's pretty amazing that it was also invented (sort of) in china. All you need to do is download an App, click a few buttons and just hop on a bike. Furthermore, Bike-sharing can also include in your daily workout! Every morning, you hop on a bike and ride around for 1 hour. It can help increase your exercise volume. Plus, it's a lot more easier then having to walk 3 kilo-meters to your work place every single day. Now many places like New-York city, Paris, Barcelona, Beijing and Philadelphia all have bike-sharing systems.

You won't believe this but, China invented the App most people use today. There was a company called ByteDance in Beijing, China that was made for internet technology. What App did you think ByteDance created? You guessed it, it was TikTok. With 1 Billion monthly global active users, TikTok was a very successful social media dedicated to short-form videos created from many people around the world. In 2016 the Chinese TikTok was invented. By the time in 2017 the international version was created. It was the most popular App between 2020 and 2021. And in 2022 it already earned a whopping \$9.9 billion US dollars! That's a lot of money! I can't believe if how these famous influencers on TikTok like Zach King, Charli D'Amelio, Bella Poarch, James Charles and other countless influencers would make a living without China's wonderful, popular invention. Not only it is good for people to make money, it is also an very important key in daily life. Entertainment is a thing that everyone does in their life. But you might think scrolling on TikTok in your bed sounds very unhealthy, keep in mind, many people do this. Maybe you even do it! But still this App is entertaining everyone. Scrolling on a phone sounds so simple, but almost everyone likes to do this!"

Just imagine you had to drive all the way across the earth just to buy an item that is only sold in that one country. That's when mobile shopping comes in handy. In 1999, entrepreneur Jack Ma formed Alibaba, an online/digital marketplace where merchants can sell and buy things from each other. Now, people no longer have to leave their homes and take a road trip just to get that one item you want. Instead, you can simply sit on you couch and pull out your phone to order whatever you need just with a few simple clicks. How easy is that! Now you can relax for a few days on your couch playing video games and **DING DONG!**The items you have ordered had just arrived. This is how online shopping changed the entire world. Now there are many different online shopping

marketplaces on the internet such as Taobao (also invented by Jack ma), HKTV Mall, Flipkart, AJIO, Meesho and so much more!

Now you know that China did not only invent things way back then, but they invented many things in the modern ages. Furthermore Online shopping makes your life much more easier. It is a lot more easier than going to the supermarket. It's much more convenient for online shopping. Also, Bike-Sharing helped many people who can't afford a car sustainably use transportation at a very cheap price. In addition, the electric car helped contribute to rule 13 (Climate action) of the SDG (Sustainable Development Goals), which was set by the UN (United Nations). It helped many people reduce their carbon footprint and slowing down the process of the Earths ozone layer being destroyed (Global Warming/Climate change).

Ancient Chinese Inventors

Harrow International School Hong Kong, Lee, Arthur – 9

China is one of the countries in Asia with a high population of 1.402 billion people. It is a developed country that is the center of many production companies and the development of agricultural practices.

China has very many learned and intelligent people who play important roles in shaping the current world order from different fields of expertise.

Chinese developments and inventions began in the CE years with very many inventors inventing new and different things.

Some of these inventors were mathematicians, Geographers who came up with the idea of the moon reflecting the sun, astronomers who studied the stars, physicists who knew how to use magnets to identify compass directions, chemists who facilitated the development of medicine, not forgetting new technology engineers.

Efficient machines are known to have developed from this country including portable ones that are easy to learn and use. China was one of the developers of clocks that have been evolving time after time.

Those years had very little technology all over the world, unlike the current situation where technology is very much developed and it is been used for production and other purposes.

As per the current statistics conducted to identify the most technological country in the world, China was ranked third. The following are the top ten most famous Chinese inventors.

1. Cai Lun:

Cai Lun was a Chinese eunuch court official of the eastern Han dynasty. He was born in 57 CE in Leiyang Hengyang, China. He joined the service of the imperial palace in 75 CE. In the year 105, he came up with the idea of making paper.

History has it that on the 11th day of March year 105, Cai Lun presented his paper to the emperor of the ruling Han Dynasty, Han Ho Ti. He died in the year 121 CE.

2. Zhang Heng:

Zhang Heng was a polymath scientist, astronomer, inventor, and statesman. He was born in 78 CE in Nanyang, China.

He was the chief astronomer in the Chinese emperor court. He managed to map the stars and planets.

Also, he was the one that discovered that the moon was not a source of light but reflected the sun. He invented Zhang's Seismoscope. He died in the year 139 CE.

3. Su Song:

Su Song was a polymath scientist who was also conversant in mathematics, geography, astronomy, cartography, horology, mineralogy, among others. He was born in the year 1020.

Astronomical clock tower in medieval Kaifeng was his development. He used hydro-mechanical engineering knowledge to develop it. This employed the use of an early escapement mechanism.

He used a chain-drive mechanism added to a water-powered clock. This clock showed the time of the day, day of the month, and phases of the moon. He died in the year 1101 in Kaifeng, China.

4. Ma Jun Dehung:

Ma Jun was a mechanical engineer, politician, and inventor. He was born in the year 200 CE in Fufeng county Baoji, China.

South-pointing chariot was invented by him and this was used during the war to alert soldiers of incoming enemies. The chariot had an idol man with one of its arms pointing to the south no matter the direction taken by the chariot. The chariot also had gear-driven wheels, Ma Jun also chain pump. He died in the year 265 CE.

5. Shen Kuo:

Shen was a Chinese mathematician, scientist, and statesman. He was born in the year 1031 in Hangzhou, China.

He discovered the True North concept in terms of magnetic declination towards the North Pole. He used suspended magnetic needles and his determined meridian which he improved. He died in the year 1095 in Zhenjiang China.

6. Wan Laiming:

Wan Laiming was a cinematographer, author, and producer. His area of expertise was animations. He was born on the 18th of January, 1900 in Nanjing, China. Chinese Animation Industry was developed by Wan Laiming together with his twin brother Wan Guchan.

In 1956, they developed the first colored animation. One of his animations is entitled 'the monkey finished the moon'. He died on the 7th of October, 1997 in Shanghai China.

7. Yi Sing

Yi Sing was an astronomer, mathematician, mechanical engineer, philosopher, Buddhist monk. He was born in the year 683 CE.

He developed an astronomical instrument in 725 CE which incidentally worked like a clock. It was, later on, named the Astronomical Clock. He died in the year 727 CE in Zhejiang, China.

8. Tu Youyou

Tu Youyou was born on the 30th of December, 1930. She is a pharmaceutical chemist and a Malariologist.

She invented a drug therapy for malaria, Artemisinin. For this invention, she has rewarded awards like the Nobel Prize in Physiology/medicine awarded in 2015. She studied at the Peking University of Beijing.

She works at The China Academy of Traditional Chinese Medicine from 1965 to date, where she is currently the chief scientist.

9. Yuan Longping

Yuan Longping was born on the 13th day of August 1929 in Beijing, China.

He was known for being an agronomist and a member of the Chinese Academy of engineering. He is the man behind the invention of the hybrid rice varieties in the 1970s.

This invention was part of the Green Revolution in Agriculture. This hybrid rice is currently grown in many African, American, and Asian countries. Yuan Longping died on the 22nd of May, 2021 in Xiangya hospital in Central South University.

10. 10.Sir Charles Kuen Kao

Fiber optics inventor, Sir Kuen Charles Kao was born on the 4th of November, 1933 in Shanghai, China. He was an electrical engineer and a physicist too.

He was pioneer the development of fiber optics which he did from the physics properties of a glass and later the discovery laid the groundwork for high-speed data. This brought to life his famous invention of fiber optics in telecommunication in the 1960s.

He was awarded the Nobel Prize in physics and the Grand Bauhinia Medal among other awards. He died on the 23rd of September, 2018 in Shatin, Hongkong.

The little detailed inventors from China have played a great role as far as development I concerned. Under their fields of discovery and innovation more so engineering, we can agree to the fact that they brought about a lot of what is seen today around the world. Their countless developments range from agriculture (the hybrid rice), medicine (artemisinin), telecommunication engineering, writing paper sheets, geographical development (true North), amongst others.

Their time-sensitivity led to the development of clocks which have been evolving day in day out and being developed further to the best. To date, China still holds top positions in as far as development and product making is concerned.

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Chen, Lianyu Lucas – 10

Introduction

Silk is an ancient invention created in 2696 BC. It is always a very interesting yet expensive material. But have you ever thought that this amazing material is even stronger than metal of the same size? You will go through an exciting journey where it will take you back to the history of silk, as well as provide a step-by-step guide to creating the best, yet most expensive fabric in the whole wide world.

History

For the first stop, we'll have to trace back to 2696 BC. The beautiful empress named Leizu was sitting under a tree, having a cup of tea.

Suddenly, a gleaming white cocoon fell from the tree and fell right into her cup. Inside the hot water, the sticky mixture dissolved, leaving a long strand of silk floating in her cup. It was a gorgeous sight for the empress. This gave the empress the idea of silk. Silk remained a secret to China until the Silk Road opened around the later half of the 1st millennium BC. China maintained its virtual monopoly over silk production for another thousand years. Silk cultivation expanded to Japan around 300 AD. By 522 AD, the Romans managed to steal silkworm eggs and were able to start silkworm cultivation.

The Arab people also started manufacturing silk at the same time, resulting in the spread of sericulture. Chinese silk exports were less important, though they still maintained dominance over the luxury silk market. Nowadays, China is still the world's largest producer of silk.

The Silk Production

It all starts with a silk moth. Female silk moths usually lay around 300–500 eggs at one time. These eggs hatch and become silkworms. After that, the silkworms take around 6 weeks to grow to their full age. At this stage, they'll stop eating and begin to spin their cocoon.

The silkworm will rotate its body in a figure-8 movement almost 300,000 times in order to spin its cocoon. This process takes 3 to 8 days. After the cocoon is collected, they are placed in boiling water which softens the mixture holding the cocoon in place. When the threads have been washed, they are bleached and dried before the next step,

dyeing. Traditional dyes are usually made with natural resources like indigo plants or fruits. The threads will be soaked in a pot of hot dye. After the silk threads are dyed, it's finally time for the most fun part: spinning. Traditional spinning wheels are an integral part of the silk production process. Even if there are processes that are able to spin threads faster using technology, they simply just mimic the functions of classic spinning wheels. Weaving is when two sets of final silk are being interlaced in a pattern, resulting in a secure piece of fabric. It is a process for the silk to turn into a piece of flat fabric.

Lastly, a piece of silk sometimes requires printing some patterns or images on the fabric. After this step, the piece of fabric is ready for delivery.

Conclusion

The information about this luxury fabric still varies. Now you have a brief knowledge about this expensive fabric, why don't you try and find out more about silk.

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Ho, Tin Yuet – 10

Ancient China had four great inventions, they were compass, gunpowder, papermaking and printing. China had new tales of inventions too! That is Tiktok.

People will think, why Tiktok is popular? One of the main reasons for Tiktok's popularity is its viral content and trends, Tiktok's algorithm is designed to surface content that is engaging and interesting to users, regardless of the creator's following or popularity.

Why Tiktok so addictive? The brain grows to desire this ongoing dopamine, sometimes referred to as a dopamine addiction, causing people to continue turning to the platform.

This World seems like is closer and closer if each day go, it is because of the internet, everyone can take a video of themselves whatever they want to do. You can watch people cooking, playing trickshots and everything you want to watch.

Who is popular in Tiktok? Zach King is a very popular in Tiktok because he always makes tricks, Charli D'Amelio is a woman who dance in Tiktok for 10 years.

There are some pros and cons about Tiktok, Bad such as increases your digital footprint. Good such as Addictive quality and high levels of engagement. The last important is What is the main purpose of Tiktok? Creating, sharing and discovering short videos.

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Hui, Lok Hei Aiden – 10

Do you know that kites were invented in Ancient China over two thousand years ago? Have you noticed that kites were originally made from wood and silk? What are the purposes of kites in the past and now? We will talk about the information regarding the history of kites, types and the construction of the kites and the usage of kites in the following paragraphs.

Kites were believed to be invented by a Chinese craftsman called Mozi in the 5th century BC. He worked for three years on building a kite that could fly in the sky. The earliest kites were made of wood and in the shape of bird. The kites became popular among farmers as they used them to scare away birds from their crops. The size of the kites varied depending on their purposes and designs. Later, kite flying spread throughout Europe between the 14th and 15th centuries. During 19th century, kites were used not only for scientific purposes like studying weather but for lifting such as lifting cameras and thermometers.

The earliest kites were made of wood and cloth. When paper was invented, it was adapted to use in kites. Nowadays, kites are made of various materials such as nylon, polyester or carbon fiber etc. Kites come in many shapes and sizes like diamond, triangle, oval and rectangle. Kites are also in form of art and expression. Many kites are decorated with colorful patterns, symbols or even some cartoon images that attract people. My dad bought a Doraemon kite for me as a birthday present and I like it very much.

The purpose of kites in the past varied depending on the culture and context. Kites could be used as military purposes such as delivering message, sending radio signals, raising banners, observation and bombing. Kites could also be used religious ceremonies such as representing the gods and flying prayers. In addition, kites could be used as entertainment and scientific experiments. There were kite flying festivals, competitions and games. Some scientists might use kites for measuring distances and testing wind speeds. Nowadays, the purpose of kites is mainly for recreation and sport such as kite surfing and kite festivals.

Kites are one of the oldest inventions in human history. They have been used for various purposes, such as military, religious, entertainment, scientific and artistic.

Kites have also evolved over time, from simple wood and cloth to complex and colorful designs made of different materials. Kites are not only a toy, but also a useful tool in the past and nowadays.

An Invention of China – Ice-cream

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Ip, Chloe – 12

Contrary to popular belief, it was actually the Chinese who first introduced the world to the wonders of ice cream. This revelation comes from the Tang Dynasty, which ruled from 618 to 967 AD, where the emperors took great pleasure in a frozen delicacy known as a "Frozen milk-like confection." This early form of ice cream was skillfully crafted by combining the milk of cows, goats, or buffaloes with flour, resulting in a truly delightful blend. To enhance the texture and flavor, a touch of camphor from evergreen trees was ingeniously incorporated into the mixture. The next step involved pouring the concoction into metal tubes and submerging them in a vast icy pool, allowing the mixture to freeze gradually. Interestingly, this fascinating process shares similarities with the traditional method employed by Indians in creating "Kulfi," a frozen dessert that predates the invention of refrigeration. The beauty of this early rendition of ice cream was eloquently captured by poet Yang Wanli in his enchanting poetry from the Song dynasty. The poem effectively captures the essence of the ice cream's texture and appearance, creating a detailed and vibrant image within the reader's imagination with just a few well-crafted sentences.

The roots of ice cream can be traced back to ancient times, with biblical references to King Solomon enjoying refreshing iced drinks during the harvest season and Alexander the Great indulging in a chilled beverage flavored with wine or honey in ancient Greece. The iconic phrase "You scream! I scream! We all scream for Ice Cream!" carries a wave of fond nostalgia and cherished memories of indulging in this delightful frozen treat. The mere thought of ice cream evokes lazy summer days, where we eagerly devoured melting cones and luxuriated in decadent Sundaes. Ice cream is a timeless pleasure that never fails to bring joy to both the young and the old. The history of ice cream is surrounded by various myths and legends, each claiming different origins. Some believe that Marco Polo brought ice cream back from his journeys to the East, while others claim that Catherine de Medici introduced it to France upon her marriage to King Henry II. However, the true origins of ice cream can be traced even further back than these tales. From its ancient beginnings to the modern-day variations we enjoy; ice cream has always held a special place in our hearts. It is a beloved indulgence that transcends time and brings happiness to people of all ages. So, the next time you hear the familiar phrase "You scream! I scream! We all scream for Ice Cream!" let it transport you back to those carefree summer days when the sweet taste of ice cream was all that mattered.

Although China is widely recognized as the origin of a dessert that bears resemblances to ice cream, but it wasn't until 1672 that the first known recipe for ice cream was formally recorded by Elias Ashmole, an Englishman. Ashmole shared an intriguing story about King Charles II having the extraordinary experience of enjoying "a solitary portion of ice cream" during a grand feast the year before. This captivating anecdote carries great importance, representing a significant milestone in the evolution of ice cream as a truly delightful and irresistible treat.

The History, Invention, Spread and Uses of Gunpowder

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lai, Pak Ho Carson – 12

“Today we are going on a field trip to the museum!”, our history teacher told us. I thought: Oh great, more learning.

We rode the tour bus to the museum. Our teacher told us that today's topic is about Gunpowder. I thought: what could be interesting about some random gunpowder I don't even know exists? Well, was I stupidly wrong.

The Imperial Palace, Beijing, A.D. 1047. A group of Tang alchemists were in a room. The room is a room for experts all over China to find a life-extending potion to conduct experiments. There were multiple people inside the room. One of them was Chinese alchemist Yang Zhang, he was only 33 years old, making him the youngest in the room.

There was a table in the room. It contained the finest examples of found materials made all over China. Yang Zhang was tinkering with saltpetre, charcoal, and just recently discovered, sulphur. He puts a little bit of saltpetre, a little bit of charcoal, and a lot of sulphur and mixed them into a giant bowl of powder. He creates a black and grey substance. Then, he boiled the powder.

“Ssszzz.... Boom!” There was smoke everywhere, and the group of alchemists can sense a strange smell. They cleared off the smoke, and found out that the glass container containing the substance was obliterated into a thousand pieces and flew all over the place!

The highest ranking official in charge of the project immediately put a stop to it, and questioned the people in the room who made that substance! The people all pointed at Yang Zhang. “He's a demon! Executerrrrrr!”, the official in charge shouted. He was immediately executed and nobody (except his family) remembered the story of the blast.

The same place, almost 300 years later, during the Mongol invasion of China, a scavenger in the ruins of the imperial palace discovers an ancient writing, from the families of Yang Zhang, about his story. He sells the writing to a rich man living in south China.

The rich man, named Meng Fang, was very interested in the story. He decides to send an expedition to find legendary “Gunpowder”.

The expedition found writings about how “Gunpowder” was invented. Meng Fang decided to try the substance out, and it worked! “Wow!”, Meng Fang said. He found that “Gunpowder” was explosive when heated up.

Meng Fang decided to make a dragon-like explosive as he made a mould of a dragon and put some gunpowder inside. He pointed the explosive upwards and lit the gunpowder inside. There was a loud bang that was heard all over the house of Meng Fang. He went to where the explosives used to be, and there was black dust everywhere. He looked up at the sky, and... there was an object falling from the sky, and “boom!”, the object hit the ground and shattered into a million different pieces.

Meng Fang was fascinated. In the following years, he made countless inventions using their gunpowder substance. There were early mines and even early bombs!

In the 1200s, the Mongols had invaded Meng Fang's house. To save his life, he decided to give the gunpowder to the Mongols as an exchange for his life. The Mongols at the time had expanded their empire to India, the Middle East and Europe. Using this new weapon, they could have expanded their empire to the entire world, but.....

A spy from European powers found out about the news of the gunpowder, and spreaded it all over Europe. Europeans quickly began research about the new substance to them, and in a short period of time, invented..... the mighty gun!

European powers decided to trade information with merchants across India and the Middle East. The Arabians and Indians shortly invented the new weapon called a cannon. Using the new weapons, the other powers completely destroyed the Mongols, pushing them out of foreign lands using the now famous gunpowder.

Later, an inventor named Alfred Bernhard Nobel invented a safe gunpowder explosive. He intended that gunpowder would be used more for peaceful inventions, but the people who got the explosives used it to develop better and more harmful bombs.

Little did Nobel know, Gunpowder can also be used for more peaceful uses. In the Qing dynasty, Modern fireworks were invented with gunpowder. In the following years, they also invented the explosive, which helped out miners in China a whole lot.

The story of Gunpowder taught me one thing: when humans get any good thing, somebody will always come in and change the reason and uses for it. We should treasure our resources and not change something from helping us to harming us instead.

Gunpowder completely changed the world around us. If there was no gunpowder, there would be no fireworks, rockets and a whole lot more. We all should remember the brave alchemist Yang Zhang for creating one of the most useful inventions in the whole world. Who would have known that a little black and greyish substance could change the course of the world?

World Class Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lam, Chun Wai Milton – 10

Most people are familiar with the four inventions of ancient China: papermaking, gunpowder, printing, and the compass, but fewer people are aware that there are world class inventions in Traditional Chinese Medicine (TCM) as well. TCM is a medical system used to treat, diagnose, and prevent illnesses over thousands of years. It includes cupping, acupressure, moxibustion, tui na, and much more. Let's explore the magnificent and honourable contributions of China within the realm of TCM, specifically the inventions of artemisinin and acupuncture.

Artemisinin

Achievement

The 2015 Nobel Prize in Physiology or Medicine was awarded to Professor Youyou Tu for her key contributions to the discovery of artemisinin and the qinghao extract, which have saved millions of lives and represent one of China's influential contributions to global health.

History

Artemisinin, the active substance of the qinghao extract for preventing malaria, was discovered during the Chinese 'Cultural Revolution' in the 1970s. Malaria has been an extensive and damaging disease with global influence since ancient times. The first use of artemisia, also known as qinghao, with its active ingredient as artemisinin, was first used in the Eastern Jin Dynasty (317–420 AD), but people didn't know it could defend against malaria. As malaria became more severe from the late 1960s to the early 1970s, over 380 extracts sourced from approximately 200 herbs were collected and tested with unsatisfactory results. Despite many failures, the qinghao extract, having artemisinin as its active substance, had promising results in one of the most important breakthroughs in the process to prevent malaria.

How it works

Once the juice of *Artemisia annua*, the source of the antimalarial drug artemisinin, is consumed, artemisinin spreads throughout our body, killing malaria parasites and viruses that are common worldwide, including SARS-CoV-2 and common cancers such as breast cancer and lung cancer.

Risks

Although there are many benefits, artemisinin has multiple risks, including skin rash, nausea, vomiting, tremors, and liver issues. However, the chance of experiencing minor side effects is around 0.9%, which means that less than one in a million people will suffer from its risks.

Conclusion

Artemisinin, a drug-resistant medicine recommended as malaria's first line of defence by the World Health Organization, has saved millions of lives around the world, especially in Africa. In fact, this notable invention is considered to be one of the most important breakthroughs in medicine in the 20th century, and because of it, 12 countries, including China, are now malaria-free as confirmed by the World Health Organization. Research is also continually conducted by scientists to enhance artemisinin production.

Acupuncture

History

Acupuncture, one of the oldest practices of treatment in traditional Chinese medicine, is believed to have begun in China. In the first half of the 1st century AD, people began discussing that acupuncture's effectiveness depended on the time, the lunar cycle, and the season. Other beliefs stated that the human body had a rhythm, and acupuncture had to be applied at the right place to be effective. Sometimes, the imbalance between Yin and Yang was believed to be the cause of diseases. In the mid-7th century, Sun Simiao created charts and diagrams that provided more standardised methods for finding acupuncture sites. He also categorised acupuncture sites in a set of modules. Acupuncture became more popular in China as improvements in paper led to the publication of more acupuncture books. The public also learned stories about royal members having their diseases cured by

acupuncturists. By the time the Great Compendium of Acupuncture and Moxibustion was published in the late 7th Century, most acupuncture practices currently used had been established.

How it works

Acupuncture involves inserting thin needles into the body to balance a life force called Qi, which can help with chronic pain and various other health issues. Inserting needles at the right place and penetrating through 361 points can allow energy to flow in balance, while the activity of sensory neurons, also known as receptive fields, can also be affected. It can also increase blood flow to different parts of the body, resulting in various pain relief.

What happens during a session?

During a typical acupuncture session, multiple activities are conducted. Firstly, the acupuncturist will assess the individual's medical condition before inviting them to sit or lie down for the treatment. Secondly, five to twenty single-use and disposable needles are inserted typically at the back of the individual's body. In this stage, the individual may experience a number of aches. After twenty to sixty minutes, the needles will be removed and disposed of, and the procedure ends. After around eight to twelve sessions, minor health issues typically improve.

Life-changing success

A woman who had struggled for twenty-two years trying multiple therapies and learning that she might not be able to walk for the rest of her life experienced a life-changing transformation when she met an acupuncturist. The acupuncturist conducted weekly acupuncture sessions with her for a few years, and as a result, she could now walk with a walking aid, which is nothing short of a great miracle.

Risks

While acupuncture offers numerous benefits, it does come with potential risks such as bleeding, bruising, soreness, infection and imbalances in blood flow. However, a prospective, observational study indicates that only approximately 10% of patients encounter mild and temporary adverse effects after acupuncture.

Conclusion

Acupuncture, as a supplemental therapy, has transformed the lives of many in recent years. This notable invention is considered to be an ancient Chinese medical treatment for relieving pain, curing diseases, and improving health. Ongoing research by scientists continues to enhance the understanding and practice of acupuncture.

World class invention

Traditional Chinese Medicine boasts world class inventions that have made significant contributions to healthcare. It has a deep history and is still popular around the world. It encompasses various traditions and has evolved into a comprehensive medical system that is not only popular in China but also in other parts of Asia and the Americas.

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lam, Yik Hay – 10

Have you heard the new tales of China's inventions? China held the world's leading position in many fields of natural study from the first century before Christ to the 15th century, with the four great inventions: papermaking, printing, gunpowder, and the compass.

The first of the four great inventions of ancient China was paper. Before its invention, words were written on natural materials like grass stalks, earthen plates, tree leaves, and even tortoise shells! Later, inspired by the process of silk reeling, people in China succeeded in making a kind of paper called "bo" out of silk. However, its production was very expensive due to the scarcity of materials. In the early 2nd century, a court official named Cai Lun introduced a new way of making paper from bark, rags, wheat stalks, and other materials. This new paper was cheap, light, thin, durable, and more suitable for brush writing.

The next of the four great inventions of ancient China is printing. Before the invention of printing, the dissemination of knowledge relied on either word of mouth or handwritten copies of manuscripts. Both methods took a lot of time and were prone to errors. 2000 years ago, during the Western Han Dynasty, stone-tablet rubbing was popular for spreading Confucian classics and Buddhist sutras. This practice eventually evolved into block printing during the Sui Dynasty. People would engrave writing or pictures on wooden boards, apply ink, and then print on pieces of paper page by page. Did you know that the first book with a verifiable date of printing appeared in China in the year 868, nearly 600 years before Europe witnessed printing?

Another one of the four great inventions of ancient China is gunpowder. Ancient alchemists discovered that certain ores and fuels, when mixed in the right proportions and heated, could create an explosion. This led to the invention of gunpowder. In 1044, in the collection of the Most Important Military Techniques edited by Zeng Gongliang, three formulas for making gunpowder were recorded – an explosive mixture of saltpeter, sulphur, and charcoal. Initially used for making fireworks, gunpowder later revolutionized warfare around the world.

The last of the four great inventions of ancient China is the compass. While mining ores and melting copper and iron, people stumbled upon a natural magnetic stone called magnetite. It attracted iron and always pointed towards the north. This magnetic stone became known as the "South Pointing Fish" and was used for land navigation during the mid-11th century in the Song Dynasty. Before the invention of the compass, navigators had to rely on the position of the sun, the moon, and the polestar to find their way.

In conclusion, these inventions have shaped the world as we know it today. We should be grateful for these inventions, as they have made life easier for every one of us.

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lau, Yee Ching – 10

Almost everyone has silk clothing at home, but do you know some amazing facts about it? This writing will contain lots of facts about silk. For example, do you know the oldest known written reference to silk is found on a bronze fragment found at the Shang Dynasty site at Anyang? Now, you might be curious so read on and find out more.

First, let's talk about the oldest Chinese history of silk making. According to history, the sericulture and the weaving of silk cloth were invented by Lady Hsi-Ling-Shih, the wife of the Yellow Emperor. This emperor ruled China in a mythical stage (about 3000 BC). Hsi-Ling-Shih created it by raising mulberry silkworms, then when they grew up she let them fly away and kept the cocoons, she made them smooth and slowly sewed them into silk. The appearance of silk is due to the triangular prism-like structure of silk fiber, which allows silk cloth to refract income light at different angles, producing different colors. Hsi-Ling-Shih is credited with both introducing sericulture and inventing the loom upon which silk is woven. Also, in Chinese texts, she is sometimes referred to as "The Goddess of Silk". Nowadays, a lot of Chinese still believe and worship her in some festivals.

The earliest evidence of silk dates back to more than 8,500 years ago and has been found in the early Neolithic Age tombs of Jiahu, China. Biomolecular evidence, reported from a study, showed the existence of prehistoric silk fibroin in the tombs. Rough weaving tools and bone needles were also excavated, indicating the possibility that the Jiahu residents may have possessed basic weaving and sewing skills required for making textiles. Other evidence of silk include items found at sites of the Yangshao culture in Xia County, Shanxi, where a silk cocoon was found cut in half by a sharp knife, dating back to between 4000 and 3000 BC. The species was identified as *Bombyx mori*, the domesticated silkworm. Fragments of a primitive loom can also be seen from the sites of Hemudu culture in Yuyao, Zhejiang, dated to about 4000 BC.

After silk was invented, for a long time silk was a material reserved for the Emperor of China and those very close to him such as important family members and very high-ranking dignitaries. It was also a secret to other countries because at that time the emperor of China didn't allow people in China to communicate with other countries.

Eventually, silk production grew to become quite a large industry in China. Silk was used for a variety of things, from fishing lines to both strings to instruments. Earlier documents have been written on the cloth. Now, Chinese paper makers developed technology to make more affordable, yet still luxurious, paper where rags were mixed with other naturally occurring fibers to make the pulps.

During the Han Dynasty, silk became somewhat of a currency. There are for instance documents from this era telling us about farmers who paid their taxes on grain and silk. When taxes were paid in silk, it also meant that the state would make its payments in silk, and civil servants could for instance get their salary in the form of silk. The cost of something could be described using lengths of silk as the unit of measurement, just like many other societies would use weight units of gold or silver.

The Chinese authorities worked hard to keep everyone about silk production a secret to retain the nation's monopoly, but eventually, information began to slip out— partly through Chinese migrants who settled abroad and made a living there from silk making.

Now, let's talk about the advantages of silk in daily life. First, do you know that silk slows down aging? Silk's natural, cloud-like quality can be attributed to its composition. Silk amino acids, a natural nutrient found in the fabric, have been found to reduce specific signs of aging, such as wrinkles. Because silk is a natural material, it is easier for this fabric to produce and retain moisture on its own. It does miracles on the skin when left in contact overnight – silk is now recognized as a natural anti-aging product in the form of towels, bedding, and pillowcases. Dermatologists attest to silk's ability to slow down visible signs of aging and revitalize the human skin even after a short night's rest. Whilst cotton and polyester material withdraw moisture from the skin through a night's sleep, silk can replenish and maintain this very moisture necessary for keeping youthful, vibrant skin. Because it is a natural material packed with essential amino acids and natural protein, silk tricks the nervous system into a relaxing state, calming your nerves and therefore smoothing out the wrinkles we develop through age.

Also, silk promotes better sleep. If you ever experienced the luxury of sleeping in silk, you might have counted only a few sheep before finally hitting your REM. Silk pajamas don't cast a spell, but this material lets you wallow in a fresh, cooling comfort that triggers your sleep mode. Silk, known for its sheen and softness, also regulates body temperature and controls moisture even in changing climates. This makes silk an excellent sleep companion that will enhance the quality of your night-time slumbers. The secret? The natural construction of this material coaxes your nervous system into relaxing, allowing you to achieve the full cycle of sleep necessary.

Lastly, silk is not just good for your body and face but also for your hair. According to InStyle, sleeping on silk – sheets, cases, headbands, nightcaps – can do wonders for your beloved mane. The reason behind this? Cotton, the most common material for sleep products, absorbs something that your hair dearly needs: moisture. This is why when you sleep on cotton pillowcases, your hair will tend to appear lifeless, frizzy, and probably more prone to static. Switching to silk will make a difference; the smooth, protein-rich material allows your hair to smoothly slide, minus sucking out its much-needed moisture. Thus, you'll have fewer bad hair days. And who doesn't like healthier, shinier strands?

This is the end of the information report. You learned a lot of things about silk in both old and modern life.

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lee, Cheuk Ying – 11

Most people know the famous four inventions of China, but they don't realize that so were many other things we use today, from noodles and ketchup. The Chinese tried out different economic systems and invented the first paper money more than 1000 years ago, and the compass was developed over many centuries!

In the past few years, with the pandemic going on, China still invented mind blowing things! From the fastest speed car, to glasses that help blind people "see"! Now, let's talk about the short history of the smart glasses giving audible information of visual data to the blind ones. Unlike Google glasses, Angeles – the smart glasses, is a pair of extraordinary wearable tech that allows blind people to navigate their world through the use of AI and sensors, pretty similar to that used in autonomous car. It is also the most versatile and advanced all-in-one device for people with visual impairment.

Designed to move seamlessly with the wearer through daily life, it offers best visual acuity whether sitting reading, commuting to work, or exploring a new place. In 2016, China rolled out its first model of "Smart glasses" for the visually impaired. The technology was the first of its kind to combine both navigation and recognition functions. While most people who are visually impaired rely on guide dogs and guide sticks to assist them in their daily routine and travel, but these state-of-the-art glasses are providing a new option for the blind ones!

Besides the smart glasses, China still wasn't satisfied, so they invented a 3D printer that can print 10 full sized houses in a day. Later in 2016, construction company Hua Shang Tengda build the 3D printing machine and printed a 400-square-meter, two story house in a mere month and a half! The study also shows that the house will at least last 100 years! Although some people think that the house might be unstable, the study shows that the main pros of a 3D printed home are the opportunities for new designs, reduced costs, and fewer construction errors! On the other hand, next 3D printing company in China called Winson used their 3D printer and printed "Office of the future" in Dubai, and many other 3D printed houses in China. All in all, this leads to a more efficient construction industry, and to improve the technical skills of future engineers.

After inventing Angeles the smart glasses, and the 3D printer, China still didn't think it's enough, so they again invented high-speed rail technology! The high speed rail (HSR) network in the People's Republic of China (PRC) is the world's longest and most extensively used, with a total length of 42000 km (26000 mi) by the end of 2022! The HSR network encompasses newly built rail lines with a design speed of 200–350 km/hour! China's HSR accounts for two-thirds of the world's total high-speed railway network! Let's talk about the history of this HSR network. This high-speed railway network planning started in the early 1990s under the leadership of Deng Xiaoping. In December 1994, the state council commissioned a feasibility study for the line. After that, high-speed rail has developed rapidly in China since the mid-2000s. China Railway High-speed was later on introduced in April 2007 and the Beijing-Tianjin intercity rail, which opened in August 2008, was the first passenger dedicated to high-speed rail lines. Currently, the high-speed railway extended to all provincial-level administrative divisions and Hong Kong SAR, with the exception of Macau SAR.

Now, let us share more interesting facts about the HSR line. The Beijing-Kunming high-speed railway which at 2760 km (1710 mi) is the world's longest high-speed railway line in operation, and the Beijing-Shanghai high-speed railway with the world's fastest operating conventional train services. The Shanghai Maglev is the world's first high-speed commercial magnetic levitation line, whose trains run on non-conventional track and reach a top speed of 430 km/hour (267 mph). In 2020, China started testing a maglev prototype train that runs at 600 km per hour (373 mph) and planned a 2025 launch date.

Talking about Chinese inventions, we have to mention the recently announced one – the world's The first unmanned air taxi flew commercially in Anhui, China. The air taxi uses the world's first EHang intelligent EH216-S unmanned aircraft that has obtained an airworthiness certificate. It can fly continuously for about 30 minutes, with a maximum flight altitude of 120 metres and a flight speed of 10 metres per second. The air taxi can carry up to 2

people and flies using 16 propellers powered by pure electricity. The biggest feature is that it can achieve unmanned driving. The entire process is connected to the ground command centre via a 4G or 5G network, and ground personnel perform various operations on the aircraft. In order to carry more passengers and have a wider range of applications, many countries are actively developing unmanned air taxis, and China is the first country in the world to launch commercial flights of "air taxis" with unmanned aircraft. The unmanned aircraft is reported to cost more than 2 million yuan. It is currently mainly used for aerial tours of Logang Park in Hefei. In the future, it can realise straight-line air transportation, such as transportation to airports, train stations or important areas. Air taxis do not require a driver or safety officer, and there is no need for passengers to do anything. The flight routes are all set in advance. As long as you select the destination and execute the takeoff command, the aircraft will automatically fly to the destination. Its aircraft have more than 42,000 safety test flight records in 14 countries around the world, which fully guarantees its comfort and safety.

Overall, China is a very popular country, and their inventions are mind-blowing. From high-speed railway technology to give the visually impaired ones the chance to open their world! It's just amazing! I hope that a future China will invent more stuff for the disabled ones with a better chance in life.

The Invention of Movable Type Printing

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Leung, Wing Yu Natalie – 12

What is movable type printing? What is the use of it? And how does this thing exist? So today I will tell you more about movable type printing. Movable type printing is the system and technology of printing and typography that uses movable components to reproduce the elements of a document, usually on the medium of paper. They were made out of wooden blocks of sand and cast metal types from the depressions in copper, bronze, iron, or tin.

And this machine was invented by a man called Bi Sheng; he was a Chinese artisan and engineer also known as the inventor of the world's first movable type technology, with printing being one of the Four Great Inventions. Bi Sheng's system was made of Chinese porcelain and was invented between 1039 and 1048 in the Song dynasty. He was born in China in 990 AD; In 1051, he passed away.

During the reign of Chingli (1041–1048), Bi Sheng, a man of unofficial position, made movable type. He took some sticky clay and cut its characters as thin as the edge of a coin. Each character formed, as it were, a single type. He baked them in the fire to make them hard. He had previously prepared an iron plate, and he had covered his plate with a mixture of pine resin, wax, and paper ashes. When he wished to print, he took an iron frame and set it on the iron plate. In this, he placed the types close together. When the frame was full, the whole thing made one solid block of type. He then placed it near the fire to warm it. When the paste [at the back] was slightly melted, he took a smooth board and pressed it over the surface, so that the blocks of type became as even as a whetstone. For each character, there were several types, and for certain common characters, there were twenty or more types each, in order to be prepared for the repetition of characters on the same page. When the characters were not in use, he had them arranged with paper labels, one label for each rhyme group, and kept them in wooden cases.

A lot of inventions have their own stories, but they did not leave out the movable type of printing that was invented by a great person who knows a lot about wood cutting. In around 1454, a man named Johannes Gutenberg invented a printing machine that used movable lead type and printed a bible in Latin.

Johannes thinks he is the inventor of it, but what he doesn't know is that paper was invented by China a hundred years ago. Furthermore, even earlier than that, Bi Song had already invented the movable type printing machine. But what led him to create movable type printing?

But what led him to create this movable type of printing? Around 600 AD, when materials such as turtle shells, bamboo slips, and silk had been used, woodblock printing was invented. But after a while, they found out that a specialised change is very complicated due to a serious hindrance to spreading knowledge, and it needed to take a lot of time.

At that time, Bi Sheng was a carpenter, so he knew more than most people about the difficulties of carving woodblocks. But after a long time of thinking, he eventually came up with a way of revolutionising the process. Step by step, after a try at making the Chinese characters, he finally succeeded in movable printing. And that is how movable type printing was invented by our great inventor in China, Bi Sheng.

Information Report about Tea

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Tang, Chin Hay Charlotte – 10

Introduction

Do you know how tea was discovered? This information report is all about tea; it is going to tell you the history of tea, how it is made, the type of tea, all the good things about drinking tea, popular drinks and dishes made out of tea, drawbacks and world records about tea.

History

In 2737 BC, there was a Chinese emperor named Shennong who was resting one day under a tea plant while waiting for his servants to boil his drinking water when suddenly, some of the leaves from the tea plant accidentally fell into the pot of boiling drinking water, which created the first brewed tea. When the emperor saw that the colour of the water in the cup was unusual, his brain was full of curiosity, so he tried the new drink. After tasting the drink, he liked it very much and named it tea.

How it is made

In the old days, people made tea by first selecting and picking tea leaves, and then the leaves were put to dry; afterwards, if they wanted to drink tea, they would most likely put some tea leaves in a cup and then pour some hot water to create tea. But nowadays, we would first select tea leaves, and the type plus quality of leaves are used to determine the flavour of the tea. Tea leaves are picked based on variety, region, and season. Next, we will have to process the leaves. Tea leaves are processed differently depending on the type of tea. For example, green tea is pan-fried, and oolong is practically oxidised. After that, we will need to dry the tea leaves. Leaves are dried to prevent further oxidisation. There are many methods, including sun drying, machine drying, or event oven baking. The last step is grading. The tea leaves are sorted by size to maintain the flavour of the tea. The bigger leaves are used for loose-leaf tea, and the smaller ones are for tea bags.

Types of tea

There are many types of tea in the world, some of which are in China. Green tea is produced through pan-fried fresh leaves, and this unfermented tea originated in China's Fujian province. Oolong tea is another famous tea in China, which has a roasted aroma and can range from light to dark in flavour. Other teas are white tea, a rare and delicate unoxidised tea made from young tea buds and leaves. Black tea is a type of tea that originated from the Wuyi Mountain of Fujian but was then eventually popularised by the British in India.

Good things about drinking tea

If you drink tea, there are many good things about it. Firstly, tea contains a lot of antioxidants, and with these powerful antioxidants, it can help protect cells from damage and may help prevent disease. Green tea also has the most antioxidant content. Drinking tea can benefit heart health, too. The compounds in tea help lower blood pressure and the risk of heart attacks plus stroke. Finally, drinking tea can help us with cancer prevention. The antioxidants and other constituents in tea may help block DNA damage and block tumour growth mechanisms, which may be associated with a lower risk of some cancers.

Popular tea drinks and dishes

First, a famous tea drink is Bubble Tea. Bubble Tea is originally from Taiwan, these comprise tea, milk, jelly balls or tapioca pearls through a large straw. Another popular dish made from tea is tea eggs. Tea eggs are hard-boiled

eggs steeped in black tea leaves, which impart an umami flavour, a savoury Chinese dim sum dish. And finally, Masala Chai is a spiced Indian tea blend usually containing black tea, milk, ginger, cinnamon, cloves and cardamom.

Drawbacks

Even though tea has a lot of good things, there are, of course, drawbacks. Firstly, tea sometimes has caffeine content, which can affect your sleep badly. Also, some types of tea, especially those with strong pigments, can potentially stain teeth if consumed regularly over a prolonged period. Besides, tea contains tannins, which can cause stomach upset in some people if consumed on an empty stomach or in massive quantities. Another drawback of tea is that it can affect our iron absorption. The tannins in tea can decrease the absorption of nonheme iron from plant foods if consumed together. Leaving a gap between tea and meal helps. Drinking tea may lead to drug interaction. Tea sometimes contains compounds that may interact adversely with certain medications through the inhibition of metabolising enzymes.

World record about tea

There are many world records of tea. One of the records is the record for the most expensive tea, gyokuro, which was sold for \$2000 per pound at the auction in 2014. Gyokuro is a rare shade-grown Japanese green tea. The tea leaves of gyokuro came from a small garden in Uji, Kyoto, Japan. Uji is renowned as one of the top regions for matcha and gyokuro cultivation. The high price is because gyokuro is one of the most labour-intensive teas. The bushes are sheltered for three weeks before harvest to increase amino acid levels, and this rarer production process drives up the cost. Due to the intensive growing methods, the expensive \$2000 gyokuro came from a garden that produces only one kilogram of tea annually.

Conclusion

Tea is a drink that is highly filled with antioxidants, which may help with heart health and cancer prevention, but it may also be caffeine, affecting our sleep badly. And strong pigments which potentially stain teeth if consumed regularly over a prolonged period and much more.

Echoes of the Earth

HKUGA Primary School, Ng, Ho Yin Erik

Prologue: The Rumbling Echo

The silence of Luoyang City was broken when the earthquake came. The earthquake went as quickly as it came, but the damage done was devastating. The city had been shaken to its core and many people got hurt. Qing Tian was there to witness it all. She was sad to see the city being left vulnerable to earthquakes because there were so many myths about earthquakes but without a reliable method to predict earthquakes.

“Someday,” she thought, “someday, I’ll find a way to fix all this.”

Qing Tian’s Discovery

One day, Qing Tian was walking to the field to work. Something shiny caught her eye. She bent down to look closer; it was some kind of Chinese scroll. Qing Tian tried to pull it out but it would not budge. She tried again, this time using all her strength. The scroll flew out with a “Pop!”, as Qing Tian fell backwards. She blew off the thick layer of dust on the scroll and bent down to look at what was written on it. Engraved on the scroll was “Design of the Seismograph (Earthquake Detector) by Zhang Heng” in big golden letters!

The scroll illustrated the design of a large bronze vessel featuring eight dragons marking primary compass directions. Each dragon held a small bronze ball, while beneath them were eight bronze toads with open mouths to catch the balls. The scroll mentioned that an earthquake would cause one of the eight dragons to open its mouth and release its bronze earthquake and provide a rough indication of the earthquake’s direction.

For the next several days, Qing Tian took all her time studying the scroll and trying to create her own seismograph. She barely ate and worked tirelessly from day to night. Qing Tian tried many times only to fail, but she still did not give up. After many try-outs, she finally succeeded in building her own seismograph and started working on modifying it to improve its accuracy.

The Earth Shuddered Again

The city of Luoyang, still reeling from the scars of the previous devastating earthquake that had shattered its foundation, found itself thrust into another nightmarish ordeal as the earth unleashed its wrath once more. The earth washed over the city like the waves over the beach, swallowing everything in its path. House were destroyed, and shops were crushed. It was a scene of pure chaos. Qing Tian woke up with a startled cry.

“Just a dream,” she thought with a sigh of relief, “just a dream.”

Dedicated to helping the city better prepare for future earthquakes, Qing Tian tried to show her seismograph to the High Council but was faced with disbelief and ridicule. Although some citizens believed her, there were only a few.

Race Against Time

A few days later, a dragon head facing the north spit a ball. Qing Tian knew that another earthquake was on its way. A few more citizens started to believe in Qing Tian but when she once again tried to warn the High Council, nobody at the Council believed her. The clock was ticking.

While Qing Tian and her followers were at the Council, the citizens of Luoyang were going about their daily lives when suddenly, the ground trembled as the earth cracked open. The house started to crumble and fall. People got trapped under fallen debris and rubble. The people of Luoyang City began to realize their impending doom as the earthquake approached.

Qing Tian watched as the city crumbled before her, the town square collapsed and the houses toppled over. Everywhere, there was chaos and destruction. Quickly, Qing Tian gathered up the few followers she had.

“We must save the city!” she said.

Qing Tian led her followers into the city who helped to evacuate the citizens and also saved the people who were trapped under the rubble and debris made by the earthquake. But before Qing Tian and her followers had finished evacuating the citizens, the earthquake’s aftermath began. The sheer force of the earthquake made Qing Tian fall over as a piece of rubble fell towards her. She sat there with a look of horror on her face, powerless.

Suddenly, a hand grabbed Qing Tian just before the rock crushed her. She realized that it was one of her followers.

“We can’t give up now,” he said, as he helped Qing Tian up.

She nodded and led the group to continue the evacuation. Soon, with the tireless efforts of Qing Tian and her followers, many of the citizens became safe. As Qing Tian followed the line of citizens out of the city, she looked back. The city had been reduced to rubble, nothing remained but debris and ash. With a sigh, she turned around and continued walking.

“Someday,” she said in her heart, “I’ll come back someday.”

Epilogue: The Resilient Rebirth

The citizens of Luoyang, with the help of Qing Tian, rebuilt their city better than their original one. At the city election, Qing Tian was voted the Head Counsellor at the High Council. With the help of Qing Tian’s seismograph, the citizens of Luoyang were not finally getting safer protection against earthquakes.

China's Great Inventions for the Good of Mankind

HKUGA Primary School, Lo, Tsz Lam Julian

Nowadays, people around the globe are always under the impression that China is always copying other countries' products, manufacturing inferior quality goods, and selling them worldwide. Despite these accusations, the Chinese has created countless inventions that contributed to not only their country, but also the entire human race. Read on to discover the modern inventions that China has crafted and its contributions.

Around in the Ninth Century CE, the Chinese merchants developed paper money since coins were too heavy to carry. Since paper money was so lightweighted and was such a brilliant idea, the dynasty quickly adopted it for tax payments. In this day and age, China has already evolved into a technologically advanced country, using electronic payments such as Alipay, WeChat Pay, etc. rather than utilizing the traditional paper cash to even lessen the weight of paper money. Moreover, research shows that Alipay and WeChat Pay are the most popular payment method in Mainland China, and most Chinese pay by simply scanning QR codes or in-app payments via Alipay and WeChat Pay, etc. I personally also went to Mainland China with my family, and when I bought a refreshing drink in a famous tea shop, I realized that ninety percent of everything in China are paid by electronic payments! After this realization, I secretly added a mental note to myself when travelling to China, 'Your wallet doesn't have to be full, but your smartphone's battery definitely has to be full'!

But the astonishing inventions that China created does not end here. Currently, the Chinese has successfully created a high-speed rail network that not only covers a colossal distance of 23,500 miles, but also links all of China's mega-cities. Furthermore, the huge railway network has been expected to double its length to around 43,500 miles by 2035! In addition, the world's fastest train, China's Shanghai Maglev, utilizes a state-of-the-art technology called electromagnetic force to make the train levitate above the rail, eliminating friction and reach record-breaking speeds of 460 kilometers per hour and top speeds of 510 kilometers per hour. Also, do you know that travelling in high-speed rail from Hong Kong to Shenzhen North station is only 23 minutes? That is even faster than doing a massage!

Apart from technologically advanced infrastructures and other mechanics, the Chinese also created extraordinary inventions for one's daily life! At present, bike-sharing has been known as one of the 'four great new inventions of China'. In Mainland China, there are approximately thirty bike-sharing companies that operate around 10 million bikes in total! By amalgamating cutting-edge technology GPS, e-payment and some other advanced machinery, China's complicated bike-sharing system supplies the Chinese citizens to an innumerable amount of simple, easy-to-use bikes around the entire country. Also, bike-sharing can not only help Chinese citizens to travel faster and more comfortable to avoid traffic congestion, but it can also benefit the precious environment by emitting less harmful gases to the atmosphere and reducing air pollution.

Not only did China create major inventions in land, but they also created the world's first operational delivery drone! While people in the west are still waiting for Amazon flying service to exist, the Chinese citizens have already been on their couch, sipping a nice, ice-cold drink and waiting for their packages to be delivered by the revolutionary drone straight to their front door. This mind-blowing package-delivery drone was manufactured by China e-

commerce giant, JD.com. The company presently has 40 pilotless drones in use to deliver packages in Jiangsu and Xi'an, serving countless people who live in remote, rural areas. Also, since 2016, the delivery drones have successfully completed 20,000 delivery trips, leaving its mark in history.

In a nutshell, it is crystal clear that China has crafted a considerable number of inventions and contributed to not just China, but the entire mankind as other countries tend to learn and adopt China's inventions. Do you think China created numerous inventions that made the world a better place to live?

Learning about Amazing Ancient Chinese Bronze

International College Hong Kong: Hong Lok Yuen, Law Renee – 8

The first time I saw Chinese bronze was the ‘Sanxingdui’ exhibition in the Hong Kong Palace Museum. My mom took me there last year with some of my friends because we wanted to see the bronze vessels. I was so curious about the bronze products and really wanted to know more about them. Once entering the Palace Museum, we rushed to the bronze section immediately.

We saw the well-known giant bronze mask. There were so many people that we had to wait in a queue to see it. When it was finally our turn, I was amazed by the size of the mask but found the shape and pattern very weird. Its eyes were carved like almonds and its nose was like an onion to me. It has a wide mouth with thin lips and the ears were rectangular-shaped. On the forehead of the mask, there was a square-shaped hole. I wondered what it was used for, so I listened carefully to the tour guide. She said that the hole was used to hang the mask on high places back then during sacrifices.

On the information card beside the exhibited item, I learned that the giant bronze mask is 71 cm tall, 131 cm wide and 66 cm deep, making it the biggest of its kind discovered so far. It is estimated to date back from 1300 BC to 1100 BC during the Bronze Age.

During this visit, I learned a lot about ancient Chinese bronze, but I also had a lot of questions in my mind. So after I went back home, I did some research on my computer with my friends and found some interesting discoveries about the history of bronze and how it was made.

The first thing we searched is the Chinese Bronze Age. At first, we couldn't understand the difficult words on the websites, but then one of my friends said we could also watch a video.

In one of the videos, I learned that the Chinese Bronze Age is an important period in Chinese history. It began in the Xia Dynasty (2070–1600 BC), and continued during the Shang Dynasty (1600–1046 BC) and Zhou dynasty (1045–256 BC). The video also told us what bronze was used for in the ancient time. It is used for rituals, food, wine, musical instruments and weapons. When rich people died, they took many bronze vessels with them into their tomb. For people who were alive, they used bronze vessels during rituals to offer food and drinks to their ancestors.

When we finished watching the video, all of my friends told me the information was not enough, so I searched more information. One of my friends told me her Mom told her about the Piece Mould Technique, and we wanted to know more. So we searched for that too.

On the website about this Piece Mould Technique, it said that this technique is an easy way to make bronze vessels. It told us the step by step instructions. The first step is to use clay to make a model of the vessel. Then, you need to put pieces of clay around the model to make the mould. You then press the clay to make sure that the patterns are carved into the mould. After that, the mould needs to be fired to become hard and the different sections of the mould need to be bound together. Then, you pour the melted bronze through the legs of the vessel. To make melted bronze, you can mix melted copper and tin together. After learning all this information, my friends and I were amazed by how smart ancient Chinese people were. We still wanted to learn more. But, my mom told me my friends had to go. So I have to search the information by myself.

Then, I searched for the inventors behind the Piece Mould Technique. Actually, nobody knows who they were. I searched everywhere on the internet and asked my parents about the inventors of the bronze vessels, but I could not find the answer. Actually, in the end, I learned that the beautiful delicate vessels were not invented by a single person, but by many Chinese craftsmen in the ancient time.

I also learned that people today are doing a lot of research on Chinese bronze. For example, people use ink-rubbing to see the pattern clearly on the vessel and use x-ray scanning to see the density for later repair. Also, archaeologists continues to have new discoveries and dig ancient bronze up from the ground, just like the ‘Sanxingdui’ exhibition I visited in the Hong Kong Palace Museum.

After digging into my research, I'm super excited to tell my friends at school all the cool stuff I found out! Learning about bronze was like going on a treasure hunt! Plus, those ancient Chinese craftsmen were like superheroes. They must have thought super hard and worked incredibly long to make such awesome things!

China's Great Inventions

Korean International School, Agrawal, Anishka – 11

From ancient to modern times,
From tiniest of things to largest innovations
From most unique inventions to many help
China continues to amaze us with their innovation
Their journey continues to shine brighter than any other
with their inventions, creativity, imagination
Whether it be ketchup or kiwi
To gunpowder and printing
Even the most technically advanced inventions
like fastest electric racing car to the most helpful Smart glasses giving vision to the blind
China continues to disrupt the world.

As I look at all the various things I have, I often wonder about the people who made them. How could they create something so tremendously marvelous? And then there's China, a country that has contributed so much to the world with its incredible inventions and innovations throughout history. It might be hard to believe that what you're using in your daily life currently, is probably manufactured in China.

From large affordable toy production to delicious food items, the tiniest mechanical chips to big vehicles, it has been invented in China. China is an incredible part of our modern world.

I'm certain that you've tasted that creamy, cheesy, and delicious pasta, and thought what a life-changing dish Italy has invented, but China is the one who should be getting credit for that dish. It all started when archeologists found a 4000-year-old bowl of noodles. That's when it became the most antique evidence of spaghetti. Even though it would probably be older than you, it will still make drools water out your mouth. Have you ever caught yourself craving Japanese food, specifically sushi? It appears that you're a Chinese food lover. You see, in Southeast Asia and southern China, several people were already making fish in cooked rice to let it ferment for up to a year before relishing its mixed flavors of tangy, spicy, and subtle texture, way before Japanese saw the unique delicacy of it and decided to make it more popular with tiny changes in their own way. You owe China the biggest thank of your life otherwise ice cream wouldn't have been invented. You might think Parisians or Romans were the first to invent it, however, if you dig a little deeper back in history, you will find that it was that flavored ice that was made by them, but it was China's great thought to add dairy to it and turn it into an even better masterpiece.

You would most likely be using lotus leaves as shelter if umbrellas didn't exist, as a Chinese carpenter and inventor got inspired by lotus leaves being used as shelter and turned it into something far more complex just by making a wooden flexible framework and covering it with a sturdy cloth. See now how just a few changes can make a big change. I'm sure many of you can say proudly that one of your most enjoyable things to do outdoors is kite flying, well it might be hard to believe but 3000 years ago its original main purpose was to serve the military by sending messages, measuring the distances, testing the wind signal, and who knows what else. It was first made of wood but over time not only did they change the material of it but also its purpose, and as you can see now it is also used as things to play with and are enjoyed worldwide. China is also known as the hometown of rockets and invented quite a few materials such as silk, bronze, porcelain, and the most imperative paper.

I'm sure now you all have, if not completely, then at least little changed opinion about our Great China due to its game-changing impact it has on the world. It has inspired many countries to alter and upgrade the very same idea into something completely new and unique. This just proves how important China is with all of the varieties of inventions that it has contributed to us, to this world, just to make it a better, more modern place. And I am confident to say that it surely will continue to. Neither any other country, nor any city can replace China, because it is irreplaceable.

China continues to advance on its journey of innovation and creativity rising higher and higher day by day.

You can already see the long journey, the hard work that has paid off for China, as a new day unfolds a more advance path clearers its way for China to rise higher and higher, day by day. lighting its way to the very top of the podium.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Chan, Tin Lun Andres – 11

The future of the Chinese economy lies in innovation. In ancient times, there are Four Great Chinese Inventions – printing, paper making, the compass, and gunpowder. However, the core of China is to be ever-changing in which the four great new inventions of China in modern times are transformed to electronic-payment, high-technology, scientific research, and bike-sharing.

Firstly, e-payment “Alipay” is a China’s version of PayPal which is the first third-party payment platform in China. People in China can use digital money as wallet instead of cash in most shops nowadays. There are about 270 million active users in Alipay. Other than providing payment facility, money savings and transfers, the Alipay app’s user can enjoy many lifestyle services such as: paying credit card debts, bills, buy bus or train tickets, online shopping and even reserve hotel room services. From high-end luxury shops to wet markets, customers can simply present the QR code and pay through a cell phone. Besides, online shopping become a lifestyle for most Chinese people after Jack Ma created the first online shopping platform, Alibaba, and its subsidiary Taobao in China. Alibaba’s Alipay and Tencent’s WeChat Pay are leading the change toward a cashless society.

Secondly, there are many high-technology projects which have been implemented in China. For example, high-speed rail, electric car, and 6G. China has the world’s largest high-speed rail network which covers most of its major cities. Travelers can save time and money by travelling among different cities in China. It has advanced technologies and comfortable facilities to travelers in the train in which you can book tickets and meal by online payment beforehand. Besides, Chinese Electric car brands are the world’s largest automobile market. China’s government would like to be a global leader in electric vehicle implementation, marketing, and sales all in one stop. Up to now, China has more than 60 electric car models on the market. Other than electric car, China also kicked off its 6G public experimental verification platform since 2019. China Unicom expects to complete technical research and explore early application scenarios for 6G technology by 2025, said Liu Liehong, the chairman of China Unicom. The launch of 6G will be commercially available around 2030 in China.

Thirdly, scientific research on aerospace science and technology is one of the most advanced projects in the world. China pioneers its first biological experiment to the outer layer of the space back to 1964. In 1975, China introduces its first remote-sensing satellite that rotate the planet and back to Earth. A breakthrough in 1999 that China initiates an uncrewed spacecraft, Shenzhou 1, a key success of sending the country’s astronauts into orbit. The first Chinese astronaut, Yang Liwei, aboard on Shenzhou 5 in 2003. Until recently in 2022, Shenzhou 15 carrying three Chinese astronauts toward the finalized Tiangong space station which begin the permanent habitation by astronauts in the space. I have no hesitation to tell you that living in another planet will be happened in near future. The aerospace industry is a big project to be further explored by China.

Lastly, although European cities have implemented bike-sharing programs many years ago, but China has successfully transformed the access of the bike by a smartphone app everywhere anytime. The creation and innovation of shared bike concept developing drastically from China have been widely spread around the world. Of course, bike-sharing programs might not be the only way, but the concept can be transformed to other areas like vehicles. This is a good question to think of. Or even a vehicle without a physical driver which is replaced by AI driver when you get aboard to the shared vehicle.

The breakthrough of China is presented with major opportunities for green growth, technological innovations, as well as a booming AI economy through COVID recovery gradually. Chinese citizens do enjoy efficiency and convenience on their livelihood through the well-developed revolution on both industrial and technology areas. According to China, Beijing targets to elevate its high-end equipment with advanced manufacturing improvement starting in 2024. The key missions are application of 5G technology, 6G pre-research and development on AI. China aims to further develop humanoid robots and biomedicines to raise its economic growth.

In conclusion, never underestimate a manpower which can influence a country especially there are high populations of 1.4 billion in China. There are still many possibilities to be explored and not yet found in future. New innovations and creation will continuously be the top priority in China. Maybe you will be the next creator to implement a fabulous product or project which never exist in the past. Do not limit the talent you have in mind. We are looking forward to our better life in China.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Chan, Tsz Yu – 10

Yesterday, when I was in the library, I found a book about China's four famous inventions. Therefore, I opened the book out of curiosity.

After reading the book, I found out that according to old Chinese legend, tea was first discovered by Shennong, Chinese Father of Agriculture, around 2,737BC. In the Tang Dynasty, tea became a popular drink enjoyed by all social classes.

Also, the compass was invented by Chinese between the 2nd century BC and 1st century AD. It was first used in Feng Shui, the layout of buildings.

Furthermore, gunpowder was invented in the 9th century by Chinese alchemists searching for an elixir of immortality. By the time the Song dynasty treatise, Wujing Zongyao, was written by Zeng Gongliang and Yang Weide in 1044, the various Chinese formulas for gunpowder held levels of nitrate in the range of 27% to 50%. By the end of the 12th century, Chinese formulas of gunpowder had a level of nitrate capable of bursting through cast iron metal containers, in the form of the earliest hollow, gunpowder-filled grenade bombs.

And my favourite one is blocks- printing. Blocks made from wood were used in the oldest type of Chinese printing. Printing textiles and reproducing Buddhist scriptures were also done using these blocks. Short religious writings were carried as charms in this manner.

The Chinese invention of woodblock printing, at some point before the first dated book in 868 (the Diamond Sutra), produced the world's first print culture. According to A. Hyatt Mayor, curator at the Metropolitan Museum of Art, "it was the Chinese who really invented the means of communication that was to dominate until our age." Woodblock printing was better suited to Chinese characters than movable type, which the Chinese also invented, but which did not replace woodblock printing. Western printing presses, although introduced in the 16th century, were not widely used in China until the 19th century. China, along with Korea, was one of the last countries to adopt them.

The intricate frontispiece of the Diamond Sutra from Tang dynasty China, 868 (British Museum) Woodblock printing for textiles, on the other hand, preceded text printing by centuries in all cultures, and is first found in China at around 220.^[31] It reached Europe by the 14th century or before, via the Islamic world, and by around 1400 was being used on paper for old master prints and playing cards.

Overall speaking, China's inventions have really helped improve the world. So, I am very proud of them! Lastly, I hope China's inventions can help the world have a better future!

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Cheng, Ching – 11

China has a rich history of inventions and continues to contribute to technological advancements in various fields. Rail development, Mobile Payment Systems and E-commerce Giants are some notable recent inventions and innovations which are an astounding success.

China is known for its extensive high-speed rail network, which is the largest in the world. The country has developed and implemented advanced train technologies, allowing for efficient and comfortable travel at speeds exceeding 300 kilometers per hour. Apart from the high-speed rail network, the rapid development of the railway system in Shenzhen has provided a more convenient method of transportation for all citizens.

Also, Alibaba and JD.com is the major e-commerce companies in China which have revolutionized the online shopping experience. For instance, Taobao which is the largest e-commerce platforms of China, has played a crucial role in promoting online transactions and provided 24-hour purchasing convenience to all people.

Last but not least, traditional payment methods have leapfrogged by China with the widespread adoption of mobile payment systems like Alipay and WeChat Pay. These platforms enable us to make secure and convenient transactions using their smartphones. As a result of stimulating the consumer market.

These are just a few examples of China's recent inventions and innovations. The country's commitment to scientific research and development, coupled with its large market and technological expertise, positions it as a key player in the global innovation landscape.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Chow, Tsz Chiu – 10

I am Darren, I created a new invention that could help a lot of homeless people!

I created a new cooking robot that has a lot of abilities! First, it can cook by itself! The robot knows how to make every dish in the world! So it could cook so yummy food to give it to the homeless people! So this leads us to the robot second ability. The robot's hands! The hands can move and hold the dishes and give it out. How convenient! It also knows how to say nice words to others! The robot will say have a nice day! Enjoy your meal! ‘

The robot's third abilities is it can keep the food warm in its body. Just like a an oven! It can keep the food warm so the homeless people can enjoy a fresh warm meal.

The robot's fourth ability is one of the most convenient! When the robot or the homeless people drops their food, it will use it robot's vacuum cleaner to suck up the food that have been fallen down on the floor, and throw it in to the rubbish bin. After that, it will user fresh clean water to mop the floor so it will be as clean as before. It will use it air blower to dry the floor up! If the homeless drops his food, the robot will nicely give the homeless another fresh warm meal to him. I made this robot that is the food drops on the ground, he will only use five minutes to clean the floor. So avoid that anybody getting hurt!

Now I will take about this robot's fifth ability! If this robot breaks down in the middle of the sidewalk, it knows how to contact the robot control center. This robot can move really fast! So it can give out the food to the homeless people really quickly! So the homeless people can receive their food. If the robot ran out of food, it knows how to go back to the robot control center to get some more food really quickly! so if the robot ran out of food, this problem will be solved as quickly as possible. So no need to worries that the robot will ran of food.

So this is my robot cooking invention. It is really useful for helping homeless people or even people that are in need. So this invention is really important to this world. If we don't have this invention, a lot of people will starve and don't have food to eat! And they may even starve to death! So my invention is really important to the homeless people or people in need! So do not miss out on this invention!

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Fung, Hong Yiu – 12

Imagine a world without paper, where writing and reading were difficult tasks. Fortunately, ancient China gifted us with one of the most remarkable inventions in history – papermaking. This revolutionary process transformed the way information was recorded, shared, and preserved. This essay will take you on a journey through time to discover the fascinating origins and techniques of papermaking in ancient China.

The origins of papermaking can be traced back to the Han Dynasty in ancient China, around 200 BCE. Initially, the Chinese used various natural materials like bamboo, silk, and animal skins to record information. However, these materials were limited and expensive. Cai Lun, a court official during the Eastern Han Dynasty, is credited with inventing paper as we know it today. In 105 CE, he developed a revolutionary technique that utilized mulberry bark, old rags, and hemp waste to produce a durable and versatile writing surface.

The papermaking process in ancient China involved several intricate steps. First, the raw materials were soaked in water for days, allowing them to ferment. Then, the fibers were pounded into a pulp using wooden mallets. Next, the pulp was mixed with water and poured into a rectangular mold with a bamboo screen, ensuring an even distribution of fibers. Excess water was drained by gently shaking the mold. The wet sheet of paper was then transferred onto a heated surface, such as a heated stone or metal plate, to dry and solidify. Finally, the dried paper was polished with a smooth stone to achieve a smooth and even texture.

The invention of paper had a profound impact on Chinese society and the world at large. It revolutionized communication, education, and the spread of knowledge. With the availability of paper, books became more affordable and accessible, allowing for the mass production and dissemination of literature. The spread of Buddhism in China was greatly facilitated (speed up) by the use of paper, as religious (宗教) texts and sutras could be reproduced and distributed more easily. Over time, advancements in papermaking techniques were made. During the Tang Dynasty, the addition of tree bark and other plant fibers enhanced paper's quality and durability. In the Song Dynasty, paper mills were established, streamlining production and making paper more readily available. The invention of movable type printing during the Song Dynasty further revolutionized the dissemination of information, as books and documents could be printed more efficiently.

The invention of papermaking in ancient China had a lasting legacy. As neighboring countries learned of this remarkable innovation, they adopted and adapted the techniques. Papermaking eventually spread to the Islamic world in the 8th century, and from there, it reached Europe in the 12th century through trade and cultural exchanges. This marked the beginning of the paper industry in Europe, leading to the proliferation of printing, increased literacy rates, and the democratization of knowledge.

Even in the digital age, paper remains an essential medium for communication, education, and artistic expression. It has become deeply ingrained in our daily lives, from books and newspapers to packaging and art. The invention of papermaking in ancient China laid the foundation for the world we live in today.

The invention of papermaking in ancient China was a true game-changer. It transformed the way information was recorded, shared, and preserved, leaving an indelible mark on the world. The techniques and advancements made by the ancient Chinese have had a lasting impact on society, enabling the spread of knowledge, the accessibility of literature, and the growth of civilization. Paper continues to shape our lives, bridging the past and present, and connecting people across time and space.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Ho, Chak Lai – 11

Ts'ai Lun, a eunuch who served the Eastern Han dynasty in China, is widely credited with creating paper and the modern method of making it around the 2nd century BCE. He produced the first paper in Lei-Yang, China, after observing how paper wasps build their nests or being influenced by his native people. Before paper invented, writing was done on different materials like papyrus, bamboo, silk, and animal skins, but unfortunately, they were not easily accessible or long-lasting.

The Chinese people needed a better writing surface that was light, easy to carry, cheap and also long-lasting. However, the bamboo slips or silk scrolls they used before were ineffective and inefficient in use. Ts'ai Lun was inspired by how the other cultures, like the Egyptians, made paper from different materials such as papyrus. Around 105 AD, he had the notion to make paper from of shredded tree bark, hemp scraps, old fabric, and fishing nets. He improved the paper-making process to make it more economical and efficient, allowing for large-scale manufacturing.

Paper was a significant innovation in technology which changed how people wrote, communicated, and preserved information across the world. It facilitated progress in fields like literature, education, governance and intercultural exchange. People use paper made from plant fibre for many purposes, such as writing, drawing, and painting. Writing papers come in different shades of white and have smooth or rough surfaces. We use high-quality wood pulp that is bleached to make sulphite sheets, or high-quality cotton fibres to make cotton sheets.

Paper has many uses in various domains. It is a flat least material that can be written, printed, or drawn on. It is the basis for many printed media, such as books, newspaper, magazines, and notebooks. Paper is also a common packaging material for boxes, bags, cartoon, and labels, it is a versatile material for artistic and creative projects, such as origami, papercraft, scrapbooking, cardmaking, and others. Paper also plays a significant function in education. Textbooks, workbooks, notes, and other educational supplies are intended to be stored in it. Paper-based stationery, personal hygiene goods, and crumpled paper are essential for daily living, providing comfort and hygiene, and serving as a protective filler during transport and storage. It reduces the risk of damage. Paper can be recycled or made from eco-friendly sources for this purpose. In various industries and specialized fields, such as filters, electrical insulation, sandpaper, cigarette paper, medical packaging, tea bags, and more are using paper. Some of the most popular varieties of paper are copy paper, bond paper, cardstock, glossy paper, matte paper, newsprint, tissue paper, building paper, watercolour paper, vellum, tracing paper, and parchment paper.

There are many kinds of paper that people often use, such as paper for printing, writing, making cards, photos, magazines, newspaper, crafts, painting, drawing and writing on animal skins. Paper makers can check and measure the paper they make to make sure it has the right qualities and meets the expected criteria, this can make the paper better, save resources, and make the production process more effective.

The art of making paper travelled to different countries such as Korea, Japan, some European and American nations. In Korea, people like to use Hanji, which is their own paper. Meanwhile in Japan, they have Washi, which is the typical name of their paper. The Islamic Empire spread papermaking to the Islamic world in the 8th century through the enlargement of the Islamic Empire. The Arabs obtained the knowledge of papermaking at the time when they succeeded taking control of the countries they had defeated and introduced it to regions under their control, such as North Africa, Spain, and the Middle East. Papermaking adapted to the culture of each region and developed its own features and methods. Then, in the 12th century, papermaking techniques spread to Italy, Spain, and other Mediterranean regions. The paper production was getting larger in Europe. Not only that, it also developed in places

like France, Germany and Netherlands. In India, handmade paper production became very important while Kashmir gained prominent for their fine-quality papers. Papermaking techniques kept expanding and spreading through other parts of the regions. They were introduced to the Americas during European colonization. The Spanish brought papermaking knowledge to the New World, and by then, Mexico and South America and some other regions established the paper factories.

Paper is still a vital material for conveying, recording, and creating various forms of information. It can be made in different qualities, each with its own features that match different uses. For instance, papers for writing and printing are usually even and absorb ink well. On the other hand, certain paper products are less needed due to the digital alternatives. Nevertheless, we acknowledge that paper is a flexible and useful material that can contribute greatly to human interaction, learning, and culture over time.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Ho, Chin Yu – 10

The compass, called Sinan in ancient times, mainly consists of a magnetic needle mounted on a shaft. The magnetic needle can rotate freely under the influence of the natural geomagnetic field and remains in the tangent direction of the magnetic meridian. The south pole of the magnetic needle points to the geographical south pole (magnetic north pole). This performance can be used to identify the direction.

Commonly used in navigation, geodesy, travel, and military. The invention of the compass that physically indicates direction has three types of components, namely the compass, the compass, and the magnetic needle, all of which are Chinese inventions. According to the "Ancient Mine Records", it first appeared in the Cishan area during the Warring States Period.

The compass is the result of the ancient Chinese working people's understanding of the magnetism of magnets through long-term practice. As one of the four great inventions in ancient China, its invention played an immeasurable role in the development of human science, technology, and civilization. In ancient China, the compass was first used to determine the direction of sacrifices, etiquette, military affairs, divination, and Feng Shui.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Hon, Tsz Yu – 12

Shanghai has long been China's capital for the automobile industry. From the immense development of the car industry in this region, the fastest electric racing car, Nio, was born. This car startup was founded by Li Bin, who in 2015, wanted to prove to the world that his company can produce the fastest electric car in the world within the shortest possible amount of time. Therefore, they went on to take part in Formula E, the equivalent electric car race of Formula 1, and just in the first season, Nio won the world title of the fastest electric car. According to Li Bin, electric vehicles are more environmentally friendly and more capable of meeting the needs of autonomous driving. Both of these reasons are why electric vehicles are the future for China. Nio proved it was a legit race car later in 2017 when an autonomous version of the car completed the US version of the circuit at 250 km/h.

Another invention is Smart glasses which gives vision to the blind. Unlike Google Glass, Angeleye is a pair of extraordinary wearable tech that allows blind people to navigate their world through the use of AI and sensors, similar to that used in autonomous car. Not only can the smart glasses detect objects, but they can also recognize money bank notes, assist in text reading, recognize colours and distinguish different levels of light intensity. Prior to this invention, many would assume that getting this type of tech and AI system to fit into a mere 45-gram pair of glasses would be impossible. However Feng Xin Peng, the founder of Next VPU has proven the world wrong. The fact that Feng can fit this amount of power and a whole system of AI into a mobile phone and these perfect-fit glasses is an impressive phenomenon. This kind of deep learning would have been impossible a few years ago, especially when it came to having such technology fit in your pocket.

One of the biggest 3D printing companies in China, Winsun is well-known around the world, especially for the 3D printed "Office of the Future" in Dubai and many other 3D printed houses in China. According to the founder of Winsun, Ma YiHe, constructing houses is painful and inefficient for the construction workers. "Taking the hot weather, rough condition, dangerous environment, and time-consuming matter into account, why can't building houses be easier like how cars or planes are manufactured by machines?", says Ma YiHe. The house shown above was printed by a 7-meter-tall 3D printer layer by layer. For the purpose of testing the quality and safety, the house had 28,000 kg of weight on it for one and a half days. There were a few cracks here and there, but the structure didn't break – the 3D printed houses are actually three times stronger and more resistant than traditionally-built houses. In addition, thanks to the efficiency and the environmentally friendliness of materials used for 3D printing, costs can be reduced by up to 70%. From here, we can see the potential of 3D printing completely disrupting the manufacturing industry.

Imagine the application of AR that turns ordinary glass, windows at shops or taxis into space for advertising. With nanotechnology, this is made possible. Inspired by Tom Cruise's action movies, Chen Jia, the founder of Netcars Technology, launched a startup that conducts research dedicated for nanotechnology which leads to the design of AR optical technology, new telecommunication electronics and new material science. Other than advertising, the company also produces a smart vehicle info-system, a smart helmet and smart glasses.

These inventions made our lives more easier and brighter. I believe everyone in the world are glad to see these new inventions success. I hope that inventors can invent more useful inventions in order to effect the world to be more successful and convenient.

Chinese Inventors and their Inventions

Kowloon Tong School (Primary Section), Hui, Yat Yin Haylee – 11

Chinese inventors held leading positions in studying nature in the world. Other than “The Four Great Inventions”—papermaking, printing, gunpowder, and the compass, ancient Chinese Inventors contributed countless magnificent inventions to the world. Here are some of the inventions.

Hon Lik, a Chinese pharmacist, was the inventor of the modern electronic cigarette. The reason for him to make e-cigarettes was to help himself quit smoking. In 2003, Hon Lik with the astonishing idea of using a piezoelectric ultrasound-emitting element to boil away an influenced jet of liquid containing nicotine thinned out in a propylene glycol solution. This design produces a smoke-like condensation that can be sucked in and provides a vehicle for nicotine carriage into the circulating blood via the lungs. He also put forward using propylene glycol to dilute nicotine and put it down in a throwaway plastic cassette which serves as a liquid reservoir and mouthpiece. The first e-cigarette was made in Shenyang, China in 2004. The advantage of e-cigarettes is that it does not produce the two most harmful chemicals, tar and carbon monoxide, in the cigarette. With this invention, people can still smoke while minimizing the harmful effect of the cigarette, and avoid people from getting secondhand smoke.

The non-invasive prenatal diagnostic testing for Down Syndrome was developed by a Chinese researcher, Dr. Dennis Lo in Hong Kong in 2008. This is hailed as a massive breakthrough! In the old days, pregnant women had to undergo invasive testing for Down Syndrome for their babies by putting a needle through the belly to collect the amniotic fluid or chorionic villus sampling which is very dangerous and sometimes may cause death. Dr. Lo discovered that there is the baby's DNA in the circulating blood of the pregnant women. Therefore, we can simply collect the blood from the mother and perform the Down Syndrome test. It is not only convenient but also safe for both babies and the mother, the accuracy is also very high (~98%)! This method has been used in many countries around the world.

Another invention is the Wheelbarrows. The earliest wheelbarrows with archaeological evidence in the form of a one-wheel wagon from the second-century Han Dynasty Emperor Hui's tomb murals and brick tomb reliefs. The painted tomb mural of a man pushing a wheelbarrow was found in a tomb at Chengdu, Sichuan territory, dated accurately to 118 CE. After finding out about this wheelbarrow, it gave some ideas to the inventors, and throughout time, wheelbarrows have developed into the modern cars we have today, which help us to travel to different places efficiently and save our time.

These inventions have affected the world and our lives. Some helped us with efficiency, and some helped us with our health. I am so glad to have these wonderful inventors and I hope in the coming future, they can invent more gadgets to make our lives easier and brighter.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Lam, Ming Sum – 10

Ancient China was a civilization rich in inventions, from paper to gunpowder, compass and painting, those were all invented back then, but did you know that nowadays, China is still inventing useful technology like that?

In the past few years, China has invented lots of useful technology like mobile payment system including WeChatpay and Alipay. These platforms make buying things so much easier! Now, when you go to Mainland China, you will find that they don't use real money much, instead, they use online payment systems! There are so many good things about these mobile payment systems, like you don't need to bring too many cash out and you won't need to be afraid of not enough money to buy your favorite product. Unfortunately, it can cause different negative problems like hackers can steal your money from the e-wallet and if you don't have a mobile phone, you won't be able to pay.

China has also built many high-speed rail lines, the high-speed railway network is composed of four main components including the National High-Speed rail grid, Regional High-Speed Railways, Intercity High-Speed Rail Lines and the Upgraded Conventional Rail Lines that make a whopping 42,000 kilometers of high-speed railway roads!

Except from those two, China's has also made different Artificial Intelligences, including ERNIE 3.5 from Baidu and SenseRobot from Sensetime. Chinese companies and research institutions are actively working on AI technologies, including machine learning, computer vision, natural language processing, and robotics. They have invented different products to help people's lives like autonomous vehicles so that people don't need to drive themselves home, the car can do it itself.

Besides those, China has also invented new energy technologies, such as solar power and wind power, our country has become the world's largest producer of solar panels. These new energy technologies can reduce the waste of the old energy technologies and it is more eco-friendly, so the country can be cleaner. The old energy technologies also have very big smell and the people who live nearby will be very annoyed, but the new energy technologies fixed the problem, it doesn't produce any smells so the people who live nearby can live normally. One of the old energy technologies named nuclear power can cause serious health problems when an accident occurs and leaks the waste. In Fukushima, Japan, the nuclear plant there had a disaster during the earthquake and tsunami in 2011 and caused serious damage to there. They kept pouring water till this day to prevent the nuclear plant's waste to get out and harm people. Unfortunately, they have no space to keep the waste water and had to dump it in sea. It harmed many fish and sea animals there but the new energy technologies fixed that problem.

In conclusion, China is not only rich in inventions in the past. Nowadays, China is the world leader in inventing new technology products. We should appreciate our country and believe that China's technology will become better and better in the future.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Lam, Yan – 10

Paper and gunpower, inventions of the past, apps, WeChat and Taobao, inventions from now days. Chinese creativity should not only be a thing in the past, but China is also famous for creating useful things, from paper to apps. What about the coming future? In my opinion, I think that in the future phones implanted in human brains would be an interesting and creative invention. So how will this work? Well keep reading to know more about my fun idea!

Phones implanted in human brains; I would call it ‘micro–life’. ‘micro’ meaning small thing that can not be seen be human eyes, like a microscope describing really tiny and mini items. ‘Micro–life’ has many benefits, such as.....

This invention can help the growth of a person by making people more use their own brain to solve things and do not need to ask for other’s assistance, by doing so their knowledge will also be increased as others will post videos about studies and students can also remember it and expand their own horizons.

Furthermore, a person’s eyesight can also be improved as people will stop using electronic devices and just using their brains will not damage the eyesight, in addition no damage means improvement.

Lastly, this amazing invention is good for the earth’s economic development. ‘Why?’ you, my dear reader might ask. Well, it is because if people do not buy any electronic devices then factories do not have to use any more plastic to make more phones, computers, iPad, electronic watches and more.

To make a single ‘micro–life’, you will only need to recycle every day, and in the new future you, your friends, your family will definitely have a ‘micro–life’ in your own brains thinking about the past using ‘pathetic’ phones.

My invention is really convenient to use, and I am going to persuade you why. Firstly, you just need to think about something and a video, research paper, website will simply pop into your head like a thought bubble. Secondly, you do not even need to charge it as when you sleep it will turn into charging mode by itself. I mean, how convenient is that?

In conclusion, ‘micro–life’ has many benefits to a human’s life; easy to make; convenient to use. So be sure to get one as soon as possible!

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Leung, Hoi Yin – 10

Many people know about many inventions that are from China like tik-tok (a social media platform), wechat and more. But many don't know that the compass was made by a guy in China named Shen Kuo in the Han dynasty.

The first compass was made with lodestone and a metal spoon it was called the south pointing fish or the south governor, there is a plate with lots of words on it and the metal spoon is placed in the middle. After that the spoon will immediately automatically point to the south, that's why its called the south pointing fish. The compass was first used for the fisherman long ago for finding their way out to the sea where there are many big fishes and there way back to shore.

After China started using the compass, Europe adapted the compass from China then made a better kind of compass, and slowly it became the compass we see now.

A long time ago China also invented paper. It was invented by Cai lun from the Han dynasty.

Cai Lun was a Chinese eunuch court official of the Eastern Han dynasty. He thought that the bamboo that they used to write on was very heavy and bulky. So he wanted to invent a better material to write on.

He tried lots of materials and it didn't work until he attempted to boil bamboo, hempwaste, oldrags, fishnets and tree barks to a pulp, which was then beaten before mixing it with water. After he hung the mixture and dried it, he tried to write on it. He found it very easy to write on and is light. So he stopped trying other materials and the people loved it, soon after people around the world are starting to use paper.

In conclusion. China has made many good inventions, and it has helped the world in many ways.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Leung, Kwan Ho – 10

A beautiful vessel called Chinese porcelain.

The invention of Chinese porcelain is the pinnacle of ceramic craftsmanship in human history. Since ancient times, Chinese porcelain has garnered praise and admiration worldwide for its elegant forms, exquisite craftsmanship, and unique artistic value.

How was it invented? Everything can be traced back to the Neolithic period of China. During that time, people always used rough clay to make vessels. However, this clay was not suitable for creating refined vessels. As time passed, people noticed the limitations of this clay and started to search for better materials and techniques to produce more beautiful and durable vessels.

Around the 16th century BCE, they finally discovered a better material called kaolin clay. This clay had a high content of a mineral called kaolinite, which, when fired at high temperatures, produced a vitrified and translucent surface. This breakthrough marked the birth of true porcelain.

Over time, Chinese porcelain became historical relics with significant value. However, the techniques gradually disappeared, so we should treasure Chinese porcelain.

China's invention

Kowloon Tong School (Primary Section), Liang, Cadence Ka Yin – 10

One notable invention from China is the compass. The compass, also known as the magnetic compass, was invented during the Han Dynasty around the 2nd century BC. It revolutionized maritime navigation by providing a reliable method for determining direction.

The early Chinese compass consisted of a magnetized iron spoon floating in a bowl of water. The spoon would align itself with the Earth's magnetic field, pointing north and allowing sailors to navigate accurately. This invention greatly facilitated long-distance sea voyages, as it provided a reliable means of orientation, reducing the risks of getting lost at sea.

The compass not only had a significant impact on navigation but also influenced the development of trade, exploration, and the spread of culture. It enabled Chinese sailors to navigate the vast oceans, leading to the establishment of maritime trade routes such as the famous Silk Road. The compass also played a crucial role in the Age of Discovery, as European explorers relied on it for their voyages of exploration.

The Chinese compass was a remarkable advancement in scientific and technological knowledge, demonstrating the Chinese understanding of magnetism and their ability to apply it practically. Its invention and subsequent improvements contributed to the progress of navigation and had a profound influence on human history.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Ng, Ching Hang – 10

China has many revolutionary inventions, for example: compass, gunpowder, paper..... But, do you know a new tale of invention in China has just been created? This innovative masterpiece is called Smart Buddy.

I would like to explain the main purpose for me to create this invention. Nowadays, there are more and more elderly in the population, which undoubtedly bring different pressing social problems. Most of the elderly find it very difficult to take care of themselves, while some of them have no family members to look after them. They cannot cook, wear clothes and even walk properly! This could make them fall, injured, starve or even perish. In response to the problems, I create Smart Buddy which is an intelligent robot caretaker. The Smart Buddy is designed to take care of the elderly, and to bring lots of fun and happiness to them.

Smart Buddy is made of millions of nanometer-sized solar panels. It is very eco-friendly because it uses renewable solar energy to power the robot. Furthermore, it is very quiet, because it uses solar panels instead of a noisy motor. To make the Smart Buddy light and dexterous, I adopt carbon fiber for the body materials of Smart Buddy. An activity of S.T.E.M inspired me to make this marvelous robot caretaker, and the teachers in the S.T.E.M activity taught me to do coding to control the movement of the different robot parts. A humanoid robot is creepy, and it would make the elderly terrified. As such, I designed Smart Buddy to be very adorable and cuddly instead of looking metallic. Smart Buddy has big sparkling yellow eyes. And his appearance is green, which looks peaceful and eco-friendly.

Smart Buddy has lots of powerful functions. Smart Buddy's eyes can detect a person's feelings. It analyses any problem and provides advice to the elderly to resolve it. Smart Buddy's eyes can detect if the owner is feeling unwell, and Smart Buddy can give the elderly appropriate medical advice or call an ambulance if necessary. Smart Buddy's mouth is a speaker allowing him to communicate with the elderly loudly and clearly. Furthermore, Smart Buddy's legs and arms are strong and dexterous, allowing him to carry heavy bags for the elderly. Last but not the least, if Smart Buddy's owner is not in a good mood, he will transform into a projector. The projector can cheer the elderly up by playing some hilarious movies. Of course, Smart Buddy can do all the household chores, do grocery shopping and even cook nutritious meals. He can even give his owner a refreshing massage!

So what are you waiting for? Don't hesitate! Go and buy Smart Buddy immediately!

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Ng, Sin Man – 10

Do you love Chinese silk? It is shiny, lustrous, soft yet strong, it can be beautifully dyed. Nowadays, we use silk to make carpets, furnishing, curtains and so on. Besides textiles, silk is also applied in various industries such as clothing, medical and surgical products and even fishing lines. We can see silk everywhere now. But do you know the history of silk?

The production of silk originated in Neolithic China within the Yangshao culture. The oldest silk found in China has been dated to about 3630 BC. This silk was found in the Henan province, a region widely regarded as the cradle of Chinese civilization. Silk cloth was invented by Lady His-Ling-Shih, the wife of the mythical Yellow Emperor. In Chinese texts, she is sometimes referred to as “The Goddess of Silk”. The process of silk production is known as sericulture who was discovered by the Chinese 5000 years. According to legend, the princess Xi Ling-shi discovered the secret of silk production—a silk worm that could be unraveled to produce a thread.

For a long time, silk was a material reserved for the Emperor of China and those very close to him, such as important family members and very high-ranking dignitaries. Gradually, the restrictions on who could wear and use silk in China began to vanish. And more and more people—who could afford the precious material—could be seen sporting silk clothing and decorating with silk ornaments. Now, silk production became a big industry in China. Developers made silk more affordable, so many people can afford using silk.

As the knowledge of silk production was very valuable, the Chinese emperor wanted it keep it as a guarded secret, but it eventually spread beyond China, first to India and Japan, then to Persian Empire and to the west. The silk road was the trade that made it possible for people in places located far away from any silk cultivation and silk weaving and use silk. For instance, silk has been found with an ancient Egyptian mummy in the Village of Deir el- Medina; a mummy dated to 1070 BC.

After a long history of sericulture, China still remains as the world's largest silk producer. Jiangsu, Zhejiang and Sichuan are renowned provinces for silk production. Silk is one of the most treasurable culture of China and it will be last forever.

New China's invention – 'e-house'

Kowloon Tong School (Primary Section), Poon, Charlene Juliana – 10

Do you love Chinese silk? It is shiny, lustrous, soft yet strong, it can be beautifully dyed. Nowadays, we use silk to make carpets, furnishing, curtains and so on. Besides textiles, silk is also applied in various industries such as clothing, medical and surgical products and even fishing lines. We can see silk everywhere now. But do you know the history of silk?

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New Tales of China's Inventions

Kowloon Tong School (Primary Section), Siu, Hiu Long Kingsley – 11

Most people know that paper and gunpowder were invented in ancient China, but don't realise that so were many other things we use today. The Chinese tried out different economic systems, such as the first paper money invented more than 1000 years ago. The compass was developed over many centuries.

Paper making: Although it is recorded that the Han Dynasty (202 BC – AD 220) court eunuch Cai Lun (50 AD – AD 121) invented the pulp papermaking process and established the use of new materials used in making paper, ancient padding and wrapping paper artifacts dating to the 2nd century BC have been found in China, the oldest example of pulp papermaking being a map from Fang Matan, Tianshui; by the 3rd century, paper as a writing medium was in widespread use, replacing traditional but more expensive writing mediums such as strips of bamboo rolled into threaded scrolls, strips of silk, wet clay tablets hardened later in a furnace, and wooden tablets. The earliest known piece of paper with writing on it was discovered in the ruins of a Chinese watchtower at Tsakhortei, Alxa League, where Han Dynasty troops had deserted their position in AD 110 following a Xiongnu attack. In the paper making process established by Cai in 105, a boiled mixture of mulberry tree bark, hemp, old linens and fish nets created a pulp that was pounded into paste and stirred with water; a wooden frame sieve with a mat of sewn reeds was then dunked into the mixture, which was then shaken and then dried into sheets of paper that were bleached under the exposure of sunlight; K.S. Tom says this process was gradually improved through leaching, polishing and glazing to produce a smooth, strong paper.

Woodblock printing: The earliest specimen of woodblock printing is a single-sheet Dharani sutra in Sanskrit that was printed on hemp paper between 650 and 670 AD; it was unearthed in 1974 from a Tang tomb near Xi'an. A Korean miniature Dharani Buddhist sutra discovered in 1966, bearing extinct Chinese writing characters used only during the reign of China's only self-ruling empress, Wu Zetian (r. 690–705), is dated no earlier than 704 and preserved in a Silla Korean temple stupa built-in 751. The first printed periodical, the Kaiyuan Za Bao was made available in AD 713. However, the earliest known book printed at regular size is the Diamond Sutra made during the Tang Dynasty (618–907), a 5.18 m (17 ft) long scroll which bears the date 868 AD. Joseph Needham and Tsien Tsuen-Hsin write that the cutting and printing techniques used for the delicate calligraphy of the Diamond Sutra book are much more advanced and refined than the miniature Dharani sutra printed earlier.

Movable type: The polymath scientist and official Shen Kuo (1031–1095) of the Song dynasty (960–1279) was the first to describe the process of movable type printing in his Dream Pool Essays of 1088. He attributed the innovation of reusable fired clay characters to a little-known artisan named Bi Sheng (990–1051). Bi had experimented with wooden type characters, but their use was not perfected until 1297 to 1298 with the model of the official Wang Zhen (fl. 1290–1333) of the Yuan dynasty (1271–1368), who also arranged written characters by rhyme scheme on the surface of round table compartments. It was not until 1490 with the printed works of Hua Sui (1439–1513) of the Ming dynasty (1368–1644) that the Chinese perfected metal movable type characters, namely bronze. The Qing dynasty (1644–1912) scholar Xu Zhidong of Tai'an, Shandong developed vitreous enamel movable type printing in 1718.

Gunpowder: Evidence of gunpowder's first use in China comes from the Tang dynasty (618–907). The earliest known recorded recipes for gunpowder were written by Zeng Gongliang, Ding Du and Yang Weide in the Wujing Zongyao, a military manuscript compiled in 1044 during the Song Dynasty (960–1279). Its gunpowder formulas describe the use of incendiary bombs launched from catapults, thrown down from defensive walls, or lowered down the wall by use of iron chains operated by a swape lever. Bombs launched from trebuchet catapults mounted on forecastles of naval ships ensured the victory of Song over Jin forces at the Battle of Caishi in 1161, while the Mongol Yuan Dynasty (1271–1368) used gunpowder bombs during their failed invasion of Japan in 1274 and 1281. During the 13th and 14th centuries, gunpowder formulas became more potent (with nitrate levels of up to 91%) and gunpowder weaponry more advanced and deadly, as evidenced in the Ming Dynasty (1368–1644) military

manuscript Huo Longjing compiled by Jiao Yu (fl. 14th to early 15th century) and Liu Bowen (1311–1375). It was completed in 1412, a long while after Liu's death, with a preface added by the Jiao in its Nanyang publication.

Compass: Although an ancient hematite artifact from the Olmec era in Mexico dating to roughly 1000 BC indicates the possible use of the lodestone compass long before it was described in China, the Olmecs did not have iron which the Chinese would discover could be magnetised by contact with lodestone. Descriptions of lodestone attracting iron were made in the Guanxi, Master Lu's Spring and Autumn Annals and Huainan Zi. The Chinese by the Han Dynasty (202 BC – 220 AD) began using north–south oriented lodestone ladle–and–bowl shaped compasses for divination and geomancy and not yet for navigation. The Lu Heng, written by Han dynasty writer, scientist, and philosopher Wang Chong (27 – c. 100 AD) stated in chapter 52: "This instrument resembles a spoon and when it is placed on a plate on the ground, the handle points to the south". There are, however, another two references under chapter 47 of the same text to the attractive power of a magnet according to Needham (1986), but Li Shu–hua (1954) considers it to be lodestone, and states that there is no explicit mention of a magnet in Lu Heng.

New Tales of Chin's Inventions

Kowloon Tong School (Primary Section), Tang, Ho Wan – 10

In ancient China, people invented paper. it needs to do a lot of work to make paper. when we make paper it will have to use a lot of paper pulp and it can only use to make paper. So I think China can transform paper pulp from 2D to 3D. Then it can make a lots of different 3D shapes . It can turn plastic to paper. China can use the invention to make pencil cases ,water bottles, air conditioners , fans, televisions , box or models , etc.

This new invention can let China reduce waste at its source, reduce the use of plastic, and make mother earth healthier. And will not get sick because of plastic. Ultimately ,this will only be harmful to humanity.

I think it can help much people since it was an invention that it can reduce waste and help the mother earth.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Tang, Sik Hei Darwin – 11

Long, long ago in ancient China, there were some incredibly clever inventors who created amazing things! I'm now here to tell you all about them because their inventions were truly extraordinary. Let's take a journey back in time and discover the incredible creations made by these brilliant Chinese inventors!

One of the most famous inventors from China was Li Shi Zhen. He lived during the Ming Dynasty, which was a really long time ago, from the 16th to the 17th century. Li Shi Zhen was not only a great doctor but also a brilliant scientist. He spent his entire life studying plants and their incredible healing powers. He wrote a gigantic book called the "Compendium of Materia Medica." This book was like a treasure trove of knowledge about different plants and how they can be used as medicine. Li Shi Zhen described over 1,800 plants and their medicinal properties in his book. Even today, doctors and scientists still use Li Shi Zhen's book to learn about traditional Chinese medicine and find ways to help people get better.

Another intellectual inventor is Bi Sheng, an amazing inventor from the Song Dynasty, which was a really long time ago, around the 11th century. Bi Sheng came up with something called movable type, and it was a game-changer! Before his invention, making books was a slow and painstaking process because everything had to be written by hand. But Bi Sheng had an exquisite idea! He carved individual letters onto small wooden blocks, and these blocks could be rearranged to form words and sentences. Once the blocks were inked, they could be pressed onto paper, making the printing process much faster and easier. Bi Sheng's invention revolutionized the world of printing and made books more accessible to everyone. Can you imagine how much time it would take to copy an entire book by hand? It would be a never-ending task! Thanks to Bi Sheng's ingenious invention, we can enjoy printed books today.

Next, let's learn about Cai Lun, an incredible inventor who lived during the Eastern Han Dynasty, almost two thousand years ago.

Cai Lun is known for inventing something we use every day—paper! Before his invention, people used to write on heavy materials like bamboo sticks or animal bones. But Cai Lun had a brilliant idea. He took tree bark, old rags, and other plant fibers, and turned them into a mushy pulp. Then, he pressed and dried this pulp to create paper! Cai Lun's invention changed the way people communicated, recorded information, and shared their thoughts. Paper became lightweight, portable, and widely available, forever transforming education, literature, and the spread of knowledge.

Now, let's dive into the remarkable achievements of Zhang Heng, an exceptional inventor who also lived during the Eastern Han Dynasty, nearly two thousand years ago. Zhang Heng was a true genius with knowledge in various fields, including astronomy, mathematics, and engineering. One of his most awe-inspiring inventions was the seismograph. This incredible device could detect earthquakes and provide vital information for safety and preparedness. Zhang Heng's seismograph took the form of an impressive bronze vessel adorned with eight dragon heads, each holding a small ball in its mouth. When an earthquake occurred, the ground would shake, causing the balls to drop into the dragon heads. By observing which dragon's mouth held the ball, people could determine the direction of the earthquake. Zhang Heng's invention significantly advanced the understanding and study of seismic activity, greatly contributing to the safety and well-being of communities.

These inventors—Li Shi Zhen, Bi Sheng, Cai Lun, and Zhang Heng—were true visionaries who left an indelible mark on history.

If we didn't have the inventions of Cai Lun, Li Shi Zhen, Bi Sheng, and Zhang Heng, things would be very different. Cai Lun's invention of papermaking changed the way we write and share information. Without it, books, newspapers, and magazines wouldn't be around like they are today. We would have even brought bamboo slips to school today! Li Shi Zhen's work in studying medicinal plants would be lost, and we wouldn't know as much about how to use plants for medicine. Bi Sheng's movable type printing made it easier to print books, but without it, making copies would be a lot harder and slower. And without Zhang Heng's seismograph, we wouldn't have a way to detect earthquakes early. These inventors made important contributions, and their inventions have had a big impact on our world. Through their remarkable inventions transformed fields such as medicine, printing, and communication. Their creative genius and relentless pursuit of knowledge continue to inspire generations. We owe a debt of gratitude to these brilliant minds, whose contributions have shaped the world we live in today. Let us always appreciate and celebrate their ingenuity and the lasting impact they have made on our lives.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Tian, Sun Yui – 10

There are a lot of inventions around the world. But I like the most is paper, which was invented in China. Paper is a very useful invention as we can write, draw, or more on it. It is very easy to carry because it is extremely thin and weightless. Paper is invented long time ago, let me tell you about its history!

People said paper was invented by Cai Lun, an imperial eunuch official of the Han dynasty. At that time, paper was made of mulberry and other bast fibers along with fishing nets, old rags and hemp waste which reduced the cost of paper.

Before paper was invented, people in China used to write on bone or bamboo scrolls, but they are very heavy, awkward to use, and hard to transport. The light material of silk was sometimes used as a recording medium but was normally too expensive to consider. So, Cai Lun started to invent something to write on.

Cai Lun then think of the idea of making paper form bark of trees, remnants of hemp, rags of cloth and fishing nets. He then succeeded and got the emperor's praise. Although paper is useful at that time, the production was not so easy. At first, Cai Lun mixed mulberry bark, hemp, and rags with water, mashed it into pulp, pressed out the liquid and hung the thin mat to dry in the sun. This possess needs a few days before the paper can be used.

The demand for paper grew substantially, so the supply of bark could not keep up with the demand for paper. In result, many people invented new kinds of paper using bamboo during Song dynasty. After thousands of years of changes, paper became the most efficient thing to write on.

I think paper is the greatest invention of China as it is used all around the world. Making writing more efficient. I learned that nothing is impossible if I try. Like Cai Lun, had once though of making paper and he succeeded.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Tsang, Wai Yin – 11

China is one of the oldest civilizations in the world. There are many inventions that have helped the society throughout the history. Some of the earliest Chinese inventions came during ancient times. Paper, gunpowder, compass and printing are known as the “4 Great Inventions” from ancient China that went on to cultures around the world.

Perhaps the most significant ancient Chinese inventions was paper. Created during the Han Dynasty, people at that time made paper from a lot of different materials like tree trunks and hemp rag. It helped usher in an information revolution allowing knowledge to be preserved and shared more easily than on other materials like bamboo slips or silk. I feel grateful for this invention as learning becomes a piece of cake after paper was invented.

Gunpowder, another hugely important ancient Chinese invention, was created during the Tang Dynasty. It was originally developed as an alchemical but was later weaponized for warfare. However, gunpowder should be used in a peaceful way because if it is used in wars, it will cause a lot of innocent deaths.

The compass, which originated in ancient China in the 11th century, helped enable long-distance navigation. After learning that some metals are magnetic in nature, people put magnetic needle in a bowl of water to tell the direction. It greatly enhanced cultural exchanges through expanded marine travel routes.

Printing, meanwhile, was created during the Sung Dynasty. This was the earliest “character-based, movable type” printing, which could make thousands of print copies. The method involved arranging individual characters onto a print block, according to the contents. It had surely promoted knowledge exchange and learning.

Moving into the modern times, since the early 20th century science has become more advanced in China as people combined Western methods with traditional ones. We developed the high-speed rail system, e-commerce platforms, 5G wireless network and many other eye-opening technologies. These make livelihood much easier and more efficient. For example, the e-payment in China is now so advanced that citizens no longer need to bring their wallets when they go out. From buying a book to selling some shares on the stock market, everything can be done by pressing a few buttons on the phone.

While the above are designed for the people, some Chinese innovations and inventions are geared towards preserving our earth and exploration beyond the known world. China now leads the world in renewable energy. It invests heavily and produces over half of the global solar panel supply. Its ultra-large floating solar farms are revolutionizing sustainable energy development. For space adventures, China is definitely a great leader. It is well-known for investigating the space with its always improving satellites. Latest technologies have enabled China to explore the Mars recently with the robot “Zhu Rong” (meaning “God of Fire”).

In a nutshell, China has been contributing to the world with excellent innovative ideas and inventions, both in ancient and modern times. Through developing advance technologies and generating more breakthrough in knowledge, China is a confident leader to the world. I feel proud of being a Chinese. When I grow up, I will try my best to contribute the technologies of China. Who knows, I might invent one of the “Modern 4 Great Inventions”!

China's Inventions – the past glories and future promises

Kowloon Tong School (Primary Section), Wang, Chi Yuen – 11

Stop what you are doing right now and look around the room you are sitting in. The chance that you are within a five-meter radius of at least two Chinese inventions is probably as high as the possibility of your disbelief.

The books on your desk are made up of paper which was first invented over 1900 years ago by a Chinese government official. The tea in your cup is said to be discovered by a Chinese herbalist in 2737 BC, almost 5000 years ago! The paper money in your wallet finds its prototype from “white deerskin” money issued in the Han Dynasty. As an avid football fan, I found to my great surprise that this global sport can be traced back to 2BC and 3BC in China. In a game known as *cuju*, people kicked balls filled with feathers, and the balls were made by inflating animals' bladders.

It's well known that paper is one of the Four Great Inventions that China contributed to the world. Beneath this familiar fact is a fascinating story about a man whose birthday still evades historians. Cai Lun (unknown – 121 AD), the father of the modern paper, was born into a poor family. He later served as a court eunuch. At the peak of his career, Cai was the chief eunuch under Emperor He'di, responsible for producing instruments and weapons.

How could a senior court official end up inventing paper? Some legends attributed Cai's source of inspiration to a wasp nest which he accidentally encountered on a country road. Back then, Cai appeared to be interested in creating something to write on, something lighter than bamboo and wood slips. Inspired by wasps which built nests by chewing wood, Cai embarked on an uncharted experiment using bamboo, hemp waste, old rags, fishnets, and, most importantly, bark from trees. After countless trial and error, he finally made a breakthrough, and invented what later known as “Cai Hou Paper” – a much better medium of writing than bamboo and, arguably, Egyptian papyrus. It is amazing that Cai accomplished this with no training in Chemistry at all. I would imagine that he must be curious about everything. Moreover, he may have access to resources and the advanced know-how of this time, given his work at the imperial court. Therefore, it may not be a total coincidence that Cai invented paper.

Equally intriguing is the story of Zhang Heng (78 – 139 AD). In stark contrast to Cai Lun, Zhang, born into a noble family, was well educated since childhood. He was not only an important inventor, but also a prolific writer and a great mathematician. For most of his career, he also served as a government official. At one point, he became the chief astrologer under Emperor An'di.

One of Zhang's hallmark inventions is seismometer. It is said that Zhang was once saddened by a deadly earthquake which killed thousands of people, and then decided to make an earthquake detector. His final product looks odd — a brass pot with dragon heads holding balls etched on the curves and frogs on the base. A ball would fall from the jaw of a dragon into the mouth of a frog, thereby telling the direction and possibly severity of an earthquake.

Initially, people were skeptical of Zhang's detector. But many years later, a ball indeed dropped. A messenger subsequently arrived at the capital city Luoyang, reporting a devastating earthquake that happened hundreds of miles away. It turned out that inside the pot hung a pendulum. The shockwaves of an earthquake would trigger the pendulum to swing. How Zhang Heng figured out the rationale behind the seismoscope remains a mystery. But again, it may not be a sheer coincidence that the earthquake detector was invented by such a diverse, superb intellectual as Zhang Heng.

Apart from the above two outstanding inventors, a variety of ancient creators have made an indelible mark. To name just a few, Zu Chongzhi (429 – 501 AD), often remembered as a math guru who calculated π to the 7th digit, invented hammer mills and paddle boats. Shen Kuo (1031 – 1095), a statesman and scientist of the Song Dynasty, discovered the concept of true north when Europe was in the throes of the Dark ages. His concept later brought tremendous benefits to navigation practices. And lastly, crossbow, one of the most powerful weapons in video games and real life alike, was first invented by an unknown Chinese genius in about 400BC.

Long before the West transformed the world with the Industry Revolution, long before the birth of modern sciences, the ancient China thrived on a plethora of groundbreaking inventions. The tales of Cai Lun, Zhang Heng, and other inventors epitomize human ingenuity and wisdom. Why China lagged the West in producing modern inventors like Thomas Edison is another story to tell. But it is no doubt that creativity and inventiveness have always been part of our ethnic DNA. In this digital age, the Chinese People are once again at the forefront of technological innovations – from WeChat, Tiktok to home-made electric cars and semiconductors. Don't forget that our ancestors have built the solid foundations we can create anything upon, whether it be a towering skyscraper or a minuscule gnome.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Wong, Hoi Ching – 10

Have you heard of China's four major inventions? The four major inventions are papermaking, compass, Chinese woodblock printing and gunpowder. Let me introduce you to each one of them.

Firstly, let me talk about paper. Did you know who invented paper? The answer to this question is Cai Lun from the year sixty-three to year one hundred and twenty-one. He made paper because he thought that the bamboo slips people used to write on were too heavy. So, he started making paper by using bark, hemp heads, rages and fishing nets. In the first step, he decided to steam all the materials, then he chose to mash all the materials together. After that, he beat it all up into a mixture. Later, he decided to put the mixture onto some rackets and let them dry up in the sunlight. Lastly, he peeled off the paper. That is how he made paper.

Without Cai Lun, we cannot do much. Paper is important to us as most of our homework and work uses it. Paper technology soon became better and now our paper is in much better quality compared to paper in the past. Despite our change of paper from Cai Lun's age, we should thank him at the same time as we could not have paper if Cai Lun didn't invent it in the first place.

Now, onto the next invention—the compass. The first person to invent the compass was Shen Kuo. Shen Kuo was born in a rich family in one thousand and thirty-one and died in one thousand and ninety-five. In one thousand and eighty-eight, Shen Kuo finally found the compass. But why did he invent this? It was because his king died in a war as they could not make out the judgment of which way their enemy would come out and attack. To prevent that from happening, Shen Kuo started to invent the compass with carburized and quenched sewing steel needles.

In volume 24 of the book “Mengxi Bi Tan”, Shen Kuo described four ways to use the compass. Firstly, the water float method: in a bowl filled with water, place the compass on the water to indicate the north and south directions. Second, the nail rotation method: place the magnetic needle on the fingernail and rotate it gently to orient it. Number three, the bowl edge rotation method: place the magnetic needle on the edge of a smooth bowl and gently rotate the magnetic needle to orient it.

Number three, printing. Have you thought about who could have invented Chinese woodblock printing? It was also Shen Kuo from Song Dynasty. Shen Kuo was the first scholar to describe the movable type printing process. In his well-known book “Mengxi Bi Tan”, he attributed the invention to an unknown craftsman named Bi Sheng. With the use of sintered clay characters, Shen Kuo described Bi Sheng making the glyphs, picking up the characters, arranging them, printing them, and then dismantling them for later use after printing. Bi Sheng once tried wooden movable type, but the wooden movable type was not perfected until Wang Zhen of the Yuan Dynasty made wooden molds.

Lastly, about gunpowder. Gunpowder was invented by Sun Simiao. Gunpowder among China's four great inventions can not only be used to make fireworks and firecrackers, but it is also an explosive that has been used in wars for military purposes. It was originated in the Tang Dynasty or even the Qin Dynasty. During the Song Dynasty, around the middle of the 12th century, individual firearms and continuous-fire firearms with certain lethality had been developed to make up for the disadvantage that the Song people's combat effectiveness was not as good as that of the Jin people at that time. China's use of practical firearms preceded Europe's by about five centuries.

There are four world-famous inventions of China, including papermaking, compass, Chinese woodblock printing and gunpowder. This technology spread throughout the world and pushed society one step forward. Some people

think that China has many inventions and creations, and there are more than just the four major inventions. Some Chinese scholars think that Needham overestimates China's inventions. To sum up, all of the four great inventions are wonderful and precious. Also, we should always appreciate what our ancestors gave us and we must care for things they left us with.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Wong, Yuet Yung – 10

Once upon a time, there was a eunuch named Cai Lun. He started to work at court during the Eastern Han Dynasty.

Cai Lun worked as an attendance that time. One day, the Queen was writing calligraphy. When she finished she asked the servant to bring more bamboos to her. The servant answered, "My Majesty, there is no more bamboos to be found in the palace." The Queen was furious when she heard the answer. "Well, go to call some people to bring more immediately!" Just then, Cai Lun was walking around the palace, he overheard some talks. There were 2 servants, carrying a big pile of bamboos in a burden. The first servant said, "Oh dear, this is the Queen's third pile of bamboo, is she trying to worn us out? This is way too heavy!" The second servant agreed by nodding his head.

Luckily, these conversations were heard by Cai Lun. He said to himself, "Well, I couldn't just only witness this, I must find a way to solve this issue. I will find a thing replace the bamboos!"

Since then in his free time, he decided to use different kinds of ingredients to make something that is light, white, clean and soft. Finally, in 105, he finally invented his first satisfactory work: A perfect piece of paper. This is how he made the paper: He puts the mulberry bark, hemp rags, and old fishnets into the pulp. Second, you take out the finished work and let it dry. When he made his paper, he instantly ran as fast as he could to show the others his work.

After some time, Cai Lun have met the two servants again. This time, the things that they said was not the same as last time. "I just can't believe that the paper were this light! I thought it was just lighter than the bamboo a little bit, but it turns out to weight like a feather! Carrying this is just as same as walking in the garden," the first servant said. The second one was over the moon. "I just can't believe it! How can he make the paper so thin and smooth? It is just like magic! These stack of paper will be enough for the majesty for one year. I can't wait to see the queen's reaction of this. After hearing this, Cai Lun couldn't help but snickered.

His hard work did not only just change the ancient China, his hard work have also made a huge change to all the countries in the world. Countries stopped using rocks, white shirts, even wood just because of Cai Lun. The name of 'Paper's Inventor' went to Cai Lun ever since.

Satellite Communication Function on Mobile Phones

Kowloon Tong School (Primary Section), Xiao, Yuang – 10

In the time of rapid development of digital technology, Chinese mobile phone has their leading position in the communication field again, leading the wave of innovation in the mobile phone industry. The latest breakthrough technology has pushed mobile communication to a new height – satellite communication.

With the continuous progress of technology, the demand for communication has also grown rapidly. However, in some areas or natural disasters, traditional phone cannot provide reliable communication services. Chinese company took the lead in mobile phone calls through satellite signals users to maintain smooth communication at any place.

Chinese phones are equipped with advanced satellite communication chips, and users only need to enable satellite communication function in the phone settings to make calls in areas without base station signal coverage. Satellite communication not only plays a crucial role in responding to natural disasters, but also provides convenience for explorers, travelers, and those who need to work in remote areas. Whether it's hiking, desert exploring, or sea exploration, Chinese mobile phone's satellite communication technology provides users with reliable communication.

I believe, in the future, Chinese smartphones can also achieve more information transmission through satellite networks, including data transmission, etc. We can surf the Internet and make video calls in areas without signals, and we don't have to worry about the problem of phone signal.

New Chinese Inventions in Technology

Maryknoll Convent School (Primary Section), Wan, Hei Yi Hayze – 11

China is very famous for its innovation and technological advancement. In the past few years, China has invented a lot of things in different areas, such as space exploration, technology, cultural development, and many more. These inventions help us in our daily lives a lot. Do you know what they are?

China has emerged as a global leader in 5G technology, changing the technological world once and for all. With its rapid speed and astounding connectivity, 5G has the potential to transform many different zones, such as transportation, manufacturing, or even the aviation industry.

According to Rcwireless, China's three main telecom operators have announced their subscriber totals for the month of November 2023, including a combined net increase of approximately 26 million 5G package subscribers, boosting their combined 5G package subscriber base to nearly 1.348 billion. At the end of December, 5G package subscribers accounted for 78.6% and 77.3% of China Mobile's and China Telecom's total subscriber.

"5G will overtake 4G in 2024 to become the dominant mobile technology in China," according to the report. "4G and 5G dominance in China means legacy networks are being phased out. While some users have changed to 4G and 5G, legacy networks continue to support many different services. Still, some estimates suggest that legacy networks could be almost entirely shut down in China by 2025," the study reads.

According to the GSMA report, 5G will account for 88% of mobile connections in China by 2030, while 4G technology will account for the remaining 12%.

Apart from 5G technology, China has also made some outstanding progress in artificial intelligence. China is at the forefront of AI development. AI today is highly dependent on data, and China has more human data than any other country thanks to its well-educated 1.4 billion people.

According to a blog of Top 10 China's AI Stories in 2023: A Year-End Review and the website of Amazon, on 31-8-2023, eight Chinese LLMs, including ERNIE Bot, ChatGLM and some more, cleared the filings to offer services to the public.

By November, over 20 LLMs had been approved, a list that includes Alibaba's Tongyi Qianwen, Tencent's Hunyuan, iFlytek's Spark, NetEase's Ziyue, Ant Group's Bailing, Moonshot, and WPS AI, among others. With full access, Chinese chatbots can now analyse more data than it has ever before.

The majority of Chinese ChatGPT alternatives use Reinforcement Learning with Human Feedback (RLHF), a machine learning (ML) technique that uses human feedback to optimise ML models to self-learn more efficiently. Reinforcement learning (RL) techniques train software to make decisions that maximise rewards, making their outcomes more accurate. Public access allows them to evolve more rapidly beyond their beta testing. Chinese chatbots are also different from Western chatbots like ChatGPT or Poe. Improved for new users, these chatbots have set up an answer for every question beforehand. Features like voice dialogue and text-to-image generation are also commonly included to let users use them more conveniently.

Another great invention from China is AngelEye. Unlike Google Glass, Angeleye is a pair of extraordinary wearable tech that allows blind people to navigate their world through the use of AI and sensors, similar to that used in

autonomous cars. Not only can the smart glasses detect objects, but they can also recognize money bank notes, assist in text reading, recognize colours, and distinguish different levels of light intensity. It uses binocular stereo cameras to pretend to be human eyes and convert visual information into audible signals. As a sensory extension for the visually impaired, the AngelEye smart glasses help the blind see the world safely. All you have to do is to press the button on the bottom, and the glasses will activate.

Before this invention, many would assume that getting this type of tech and AI system to fit into a plain glass would be unimaginable. However, Feng Xin Peng, the founder of Next CPU has proven the world wrong. The fact that some genius can fit this amount of power and a whole system of AI into a mobile phone and these glasses is an impressive phenomenon. This kind of deep learning would have been impossible a few years ago, especially when it came to having such technology fit in your pocket.

If you are interested in inventions, are you interested in cars? If you are, this invention will shock you.

According to a blog of Top 10 China's AI Stories in 2023: A Year-End Review, Alibaba is one of the biggest e-commerce companies in the world and has had a huge success in bringing everything online. Today, a startup founded by Alibaba, Banna, is also bridging cars to the Internet. The car is built with 4G and Wi-Fi. It can do anything, for example flying a drone. It can even talk to other cars, find a gas station, or even find a restaurant without needing to use Google map.

In the first year that it was launched, 5,000 cars were sold. Now, they're selling 20,000 a month, while also expecting 6 million cars to adopt its operating system by 2023.

As you can see, everything in China will go online, even cars – this marks the beginning of digital transformation across the automotive industry. China has had many achievements in inventions and technology over the past few years. China has created many useful inventions that may change our lives forever and open a door for us to the technological world.

Traditional Chinese medicine – A gift from the Chinese to the world

St. Joseph's Primary School, Chan, Lok Chi Aidan – 9

In the history of mankind, the Chinese have always been making important contributions to the advancement of the world. The four greatest inventions of ancient China, namely papermaking, printing, gunpowder, and the compass greatly enhanced the quality of life of many people. In addition to these four inventions, there is another major creation made by the Chinese which is equally influential and has saved millions of lives: traditional Chinese medicine. In the present day, the modernization of traditional herbal medicine by scientific methods should be regarded as an important invention. Artemisinin (QingHaoSu), which is now used to treat malaria infection, is one typical example.

Malaria is a life-threatening disease caused by parasites. There are four kinds of parasites that cause malaria in humans. These parasites are transmitted to people by mosquito bites. During the 1960s, there was an outbreak of drug-resistant malaria, caused by the parasite *Plasmodium falciparum*. The whole world was on a quest for an effective cure for the infection. Scientists around the world tried thousands of compounds, but none of them worked. In China, the government set up a special program to assist research on malaria cure, called Project 523, named after the date the project was started: the 23rd of May. A female Chinese scientist Tu Youyou was tasked to lead the project. She looked into the traditional Chinese medical literature and some folk recipes and also questioned a few experienced Chinese medical practitioners. Within three months since the project was launched, she had already collected over two thousand herbal, animal, and mineral prescriptions. After a lot of experiments and failures, she focused back on traditional Chinese medical literature. She tested multiple herbs and among them, one herb, QingHao, showed some effects on curing rodent malaria. However, it did not work every time. She then read “A Handbook of Prescriptions for Emergencies” written by Ge Hong and noticed a sentence “A handful of QingHao immersed in two litres of water, wring out the juice and drink it all.” According to this ancient Chinese medical literature, QingHao must be extracted at a cold temperature to be effective.

Tu Youyou and her team then redesigned the experiment and extracted the juice from QingHao using a lower temperature. They also used different parts of QingHao, such as its leaves and stem to see which part of the plant was effective. They finally found out that it was the leaves of the QingHao plant that was killing the malaria parasite. They named the compound QingHaoSu and tested it on malaria-infected monkeys, rodents and other animals. The experiment showed that the malaria parasite disappeared from the animals' blood after treatment. Afterwards, it was time to prove that it works in humans. Following the example of Shen Nong, who tasted hundreds of herbs before using them on others, Tu Youyou and her team members tested QingHaoSu on themselves first. After confirming that QingHaoSu was safe to use on humans, the team carried out later the first clinical trial on humans. They found some voluntary people who were infected with malaria. The people were divided into three groups and the three different groups were given different doses of QingHaoSu, then her team paid close attention to the change in the people's temperature and the number of parasites inside their bodies. The clinical trial was successful, all patients recovered from malaria and no malaria parasites were detected inside their body. QingHaoSu was proven effective against drug-resistant malaria. QingHaoSu was then named scientifically as Artemisinin.

Was the discovery of Artemisinin just an ordinary story? No. Tu Youyou's path to finding Artemisinin was not easy. In the 1960s, it was the time of the Cultural Revolution in China. Many factories and manufacturing facilities were closed during that period. The environment for research was tough and money support was limited because of the poor economy. Many of her teammates fell sick after working long hours in the poorly ventilated laboratories. However, she successfully overcame all these difficulties and let the world recognize traditional Chinese medicine by proving Artemisinin's effectiveness with scientific methods and running the first clinical trial on Chinese

herbs. In recognition of her contributions, the Nobel Committee awarded her the Nobel Prize in Physiology or Medicine in 2015.

Artemisinin had already been used for thousands of years. However, the scientific method to extract and experiment the drug was a breakthrough. At the end of her Nobel Prize lecture, Tu Youyou made this statement: “*Let us reach to a greater height to appreciate Chinese culture and find the beauty and treasure in the territory of traditional Chinese medicine!*”. Artemisinin is just one example of how the ancient wisdom of traditional Chinese medicine helps transform modern healthcare. Traditional Chinese medical practice covers a broader area beyond herbal medications, including bone-setting, acupuncture, moxibustion, etc. Given its long history and great potential to benefit people's health, traditional Chinese medicine rightfully deserves recognition as the fifth greatest invention of China.

New Tales of China's Inventions: The Compass and the Beidou Navigation System

St. Joseph's Primary School, Chan, Yau Ka Enzo – 11

Imagine yourself on a boat without a compass trying to transport from Ancient China to Ancient India at noon. How would you find where to go without GPS working on our phone? Would we even have phones without the invention of the compass? You would be worried about being blown away by the screaming wind during your voyage which lasts for several months or even a whole year with a map but it has no compass or GPS!

“It was easy to get lost due to poor orientation, which is why kings in ancient times invented an instrument that points south and so shows in which direction West and East lie.” These are the words of the Third Century B.C. thinker, Han Fei. The instrument he is speaking about here is the South-Pointing Chariot, which was an early version of what we now call the ‘compass’. Historically the compass has been the world’s most important navigational invention, and it was created by the Ancient Chinese. It is the mother of all navigational technology we rely on today. Without it, the development of the BeiDou Navigation Satellite System would not exist today. In this essay, we will explore these two significant inventions from China --- The compass and BeiDou Navigation Satellite System --- and how they have forever changed the way of human travel.

In 1620, the British philosopher Francis Bacon wrote in his book the *Novum Organum*, “Printing, gunpowder and the compass... have changed the whole face and state of things throughout the world, ... whence have followed innumerable changes, in so much that no empire, no sect, no star seems to have exerted greater power and influence in human affairs than these mechanical discoveries.” We can see from this the world-changing importance of the compass but first let’s understand what a compass is and how it works. A compass is a device that shows the cardinal directions used for navigation and geographic orientation. To put it more simply, it is for finding directions and it works by pointing which way is north and to help us especially when we get lost. While the compasses we use today point north, the Ancient Chinese compasses originally pointed south. This included the south-pointing fish, the ‘spoon’, or the Sinan, and the south-pointing chariot (指南車). The so-called “south-pointing fish” was a wooden fish with a magnetized iron needle within it, that floated in a bowl of water. The Sinan has been magnetized, and when you put it on the plate, it reacts by pointing to where south is. The south-pointing chariot’s figure always points to the south whichever way you turn it, allowing people living at that time to find their sense of direction. Imagine you’re the figure and the chair is the chariot. Before people had a compass, they used to navigate using the Sun, the Moon and the stars, but all of them are unreliable due to some unexpected weather conditions. They were not useful on rainy or cloudy days, but people could now navigate anywhere thanks to the ancient compass which was invented in the year 206 BC.

The true example of the impact of the compass came during the time of the Chinese explorer Zheng He (1371–1433). He commanded seven expeditionary treasure voyages to Southeast Asia, South Asia, West Asia, and East Africa from 1405 to 1433. In those days, there were no satellites or Google Maps to help them navigate. Numerous ships would travel for days out of sight of any land. But Captain Zheng wasn’t afraid as he knew how to monitor stars in the sky and also taught his men how to use the “South-Pointing Needle”, which we now call the compass. For

them, the compass was not just an invention but a means to explore and discover, and led them to far-off places such as India, Siam (now Thailand), the Horn of Africa and Arabia.

Transitioning to the present day, the BeiDou Navigation Satellite System (BDS; 北斗卫星导航系统) was invented in China in the year 2000. It is a satellite-based radio navigation system which has been independently constructed and operated by the China National Space Administration. The first idea of a Chinese satellite navigation system was come up with Chen Fangyun and his colleagues in the 1980s. The BeiDou system consists of 30 satellites in three different orbits. It provides global positioning, navigation, and timing services, even more accurate than GPS. BDS has been widely used in transportation, communication, meteorological forecasting, disaster relief and public security. The BeiDou-3 Navigation Satellite System provides full global coverage for timing and navigation, along with Russia's GLONASS, the European Galileo positioning system, and the United States's GPS. Beidou, which means 'Big Dipper' in Chinese, literally means 'Northern Dipper'. We can see the connection of the Big Dipper and the Beidou Navigation System because the Big Dipper can help you find the North Star. Several companies such as AutoNavi (also known as Amap) are using Beidou in their services, providing accurate and real-time navigation information to users. AutoNavi also provides mapping data of China and Taiwan for Apple Maps and Google. Its own map application was the top mobile map app in China in 2012, with over 100 million users.

The impact of the Beidou Navigation System has paved the way for high technology development in China, particularly in the daily use of driverless taxis in the cities such as Beijing, Shanghai and Guangzhou. According to ChinaDaily on 10th July 2023, Dai Wanli, a 35-year-old Beijing resident, said she and her family took a ride in a driverless taxi in May at Shougang Park.

"We booked a ride using a mobile phone app and followed instructions to the closest stop to board a self-driving taxi. We scanned the code, the door opened on its own and we hopped in," Dai said, pointing out that driverless taxi was a very smooth and accurate ride.

"My son absolutely loved the ride. We've seen other special projects in the industrial park, but this one is by far the most impressive," she said, adding that they planned to book another ride soon.

Beidou Navigation system helps driverless taxis reach their destinations efficiently. It minimizes the accidents caused by human error, reduces traffic congestion, and minimizes carbon emissions. BDS contributes to a sustainable transportation system.

Confucius says, "Study the past if you would define the future". In conclusion, the compass and the Beidou Navigation System are interconnected inventions that were invented in China. They are both important and commonly used for navigation. The compass is one of China's four great inventions and the BeiDou Navigation System is taking a new height of China's advanced technology. These tales of China's inventions are truly remarkable that continue to shape our world.

New Tales of China's Inventions

St. Joseph's Primary School, Chan, Yin Ting Laris – 11

China is a thriving and innovative country with many advanced technologies. Many people are astounded by some of the Chinese inventions that are still widely used worldwide today including paper, compasses and so on. Let's explore more about some of the important achievements that Chinese inventors from the past to the present have contributed to the world.

One of the most remarkable accomplishments China has done is paper making. Paper became an affordable, yet convenient tool for writing after the famous Chinese emperor, Ts'ai Lun discovered the way of making paper. Cultures like calligraphy and painting wouldn't have achieved a breakthrough if paper hadn't been invented.

The availability of paper has also developed into various kinds of printing technologies too. For example, books, which are made from ink, and newspaper has become more accessible. In this way, news and knowledge are easily spread around the world. We can receive quality education by studying and drilling exercises printed as worksheets. Also, exam papers and textbooks are made possible with the use of our printing technologies. We might still have to carve words on wood if it wasn't for Ts'ai Lun!

Another discovery of China is the compass. In ancient times, it was invented for fortune-telling and it was believed that the compass could exert a kind of magic on people as it would always point to the north. As time went by, it was used to detect where the sun, stars, moons or other locations were. This significant invention also enabled explorers to go on long voyages and explore various places. Even in severe weather conditions, whether it's rainy or foggy, a compass can navigate accurately to help seamen reach their destinations safely, yet in a quick time.

Last but not least, Chang Heng's seismometer plays a crucial role in detecting earthquakes. Scientists make use of this device to map the inside of the Earth and detect the ground motions and movements. It can locate earthquakes and estimate the severity of them. Other than calculating the frequencies of earthquakes, it also plays an important role in volcano monitoring. It can identify the rise of the lava and the changes in gravity. This effective seismometer can detect even the most petite movements of the grounds. As this device can detect several natural disasters, it can give out warnings to the world so different nations can practise safety precautions, preventing deaths and injuries.

To wind up, the above are just a few of the amazing things the Chinese have invented. We should be proud to be a part of such a creative country and appreciate and celebrate the commitments they made to shape our future and bring convenience to the world. The tales of China will last forever and have a dominant role in history, yet they show potential and possibility for a brighter and better future.

New Tales of China's Inventions

St. Joseph's Primary School, Lai, Tsz Long Kaysen – 10

In ancient China, remarkable inventions were created that had a lasting impact on the world. These inventions were so impressive that they continue to influence our lives even today. Without delay, let's explore the fascinating world of China's inventions!

One of the most prominent Chinese inventions is paper. Can you imagine a world without paper? Before paper, people used to write on bamboo strips or animal bones. But a knowledgeable Chinese inventor named Cai Lun thought of a brilliant idea. He combined mulberry bark, hemp, and other materials to create a new writing surface called paper. This invention revolutionized communication and learning around the world.

Another marvelous invention from China is the compass. Navigating across boundless oceans and finding one's way home was an enormous obstacle for ancient sailors. However, thanks to this magnificent Chinese invention, their lives became much easier. The compass used a magnetized needle that always pointed north. Sailors could now confidently explore the seas, knowing which direction they were heading. This invention opened up new trade routes and connected people from around the world.

Let's not forget the significant impact of gunpowder on history. In ancient China, alchemists were searching for an elixir of immortality when they discovered gunpowder. Initially, it was used for fireworks and celebrations, but later it revolutionized warfare. Chinese inventors created weapons like fire arrows and early forms of rockets, which changed the face of battle forever.

Noodles are one of China's most scrumptious inventions. They are long, stringy dough that can be enjoyed in a variety of ways, such as stir-fries and soups. According to legend, noodles were invented by a Chinese chef who accidentally dropped dough into boiling water. Since then, they have become a staple of Chinese cuisine and have delighted food lovers worldwide.

The Chinese made a remarkable contribution to the world through the invention of printing. Before this invention, books were copied manually, which was a time-consuming and laborious process. However, a brilliant inventor named Bi Sheng revolutionized the world of printing by creating movable types. With this invention, individual characters could be arranged and rearranged to print multiple copies. This made books more accessible, and knowledge could be shared more easily. The printing press played a significant role in spreading knowledge and sparked the Renaissance in Europe.

Last but not least, we have the amazing invention of silk. Silk is a luxurious fabric that was first introduced in ancient China. Legend has it that a Chinese empress discovered silk when a cocoon fell into her tea, unraveling a fine thread. This discovery led to the development of sericulture, the process of raising silkworms and harvesting their silk. Silk became highly sought-after and was even used as a currency along the Silk Road, a renowned trade route connecting China to the West.

The ancient Chinese civilization has given the world numerous impressive inventions, which have had a significant impact on our lives. Next time when you write on paper, use a compass, enjoy noodles, read a book, or wear something silky, take a moment to remember the incredible inventors from ancient China who made these things possible. Their inventions are truly amazing and showcase the intelligence and creativity of people from the past. They have continued to inspire us and make our lives better. In the foreseeable future, I hope that I will become one of the marvelous inventors contributing to creating a better world.

Zhang Heng: Pioneer of Science Who Ignites My Learning Journey

St. Joseph's Primary School, Ng, Hinnix – 10

In the fast-paced world of technology, we often overlook the contributions of past visionaries. Zhang Heng, an inventor and scientist during China's Eastern Han Dynasty, not only introduced significant inventions but also inspired and guided my personal learning.

Zhang Heng's notable inventions include the seismograph and celestial globe. The seismograph, one of the earliest earthquake-detecting instruments, provided crucial insights into seismic activity, enabling better earthquake understanding and disaster preparedness.

His celestial globe, an instrument used to measure celestial movements, revolutionized ancient Chinese astronomy by enabling accurate observations and predictions of astronomical events.

Zhang Heng's theories on geography, meteorology, and astronomy further enriched scientific knowledge during his time. Studying his ideas has deepened my appreciation for the vastness of science and fuelled my thirst for knowledge.

Zhang Heng's story exemplifies how wisdom and creativity can change the world. His inventions and theories left a lasting impact, setting an example for future scientists. His legacy motivates me to seek knowledge, embrace innovation, and face challenges fearlessly.

Zhang Heng, a remarkable inventor and scientist, made ground-breaking contributions to earthquake studies, astronomy, and scientific development. His journey inspires me to pursue knowledge, believe in the power of science, and make my own contributions to society.

In this era of rapid technological advancements, we often overlook the contributions of the pioneers who have significantly contributed to human progress. Zhang Heng, as an inventor and scientist during the late Eastern Han Dynasty in China, not only introduced a series of important inventions to the world but also provided inspiration and guidance for my personal learning journey.

Zhang Heng is most renowned for his inventions of the seismograph and the celestial globe. The seismograph is one of the earliest instruments in the world used to measure seismic activities. Through its internal mechanical structure, the instrument automatically triggers and indicates the direction and intensity of an earthquake. This invention not only enhanced our understanding of earthquake phenomena but also provided crucial foundations for earthquake early warning and disaster prevention efforts.

Furthermore, Zhang Heng invented the celestial globe, which is an instrument used to measure celestial movements and phenomena. The application of the celestial globe allowed for more accurate observations of celestial body positions and motion patterns, enabling the prediction of astronomical events. This invention played a significant role in the development of ancient Chinese astronomy and provided valuable research foundations for future astronomers.

Zhang Heng's contributions extended beyond mechanical inventions. He also proposed theories related to geography, meteorology, and astronomy. His doctrines and ideas brought new insights and explorations to the scientific community of his time. For me, the study and understanding of these theories have sparked a deep appreciation for the vastness and profoundness of science. Zhang Heng, with his wisdom and courage, opened the gateway to the world of science, igniting my thirst for knowledge and pursuit.

Zhang Heng's story also teaches me that individuals, regardless of the era, can change the world through

wisdom and creativity. His inventions and theories not only had a significant impact on his contemporaries but also set an example for future scientists. In my personal learning journey, Zhang Heng's story motivates me to continually seek knowledge and innovation, bravely facing challenges and difficulties.

It is through Zhang Heng's contributions and influence that I firmly believe in the ubiquitous presence of science. It guides us in understanding the world, exploring the unknown, and contributing to the progress of humanity. Zhang Heng's story is not just a legend of an inventor; it is a narrative of human wisdom and courage, which continues to inspire me in forging ahead on the path of science.

Zhang Heng, as a great inventor and scientist, made significant contributions to earthquake studies, astronomy, and the overall development of science through his inventions and theories. His story inspires me to pursue knowledge, seek innovation, and have faith in the transformative power of science. Zhang Heng's wisdom and courage have guided me towards the path of science, allowing me to recognize the vastness and profundity of scientific exploration. His story will continue to motivate me to bravely face challenges, pursue the essence of knowledge, and make my own contributions to the progress and development of humanity. Zhang Heng serves as a role model for my learning journey, demonstrating how an individual can change the world through wisdom and creativity. I will strive to follow in his footsteps, inspired by his legacy, and contribute to the world of science.

The Incredible Power of Chinese Acupuncture Needles

St. Joseph's Primary School, Pun, Sun Long Cardison – 11

A surgeon was holding a beating heart in his hand while the fully conscious patient was undergoing open-heart surgery. The young patient chose an ancient method of relieving pain because the cost was much more affordable for a factory worker like her. She needed to close the hole in her heart, which was a major life-threatening operation.

Beyond her wildest dreams, the patient did not feel any pain despite staying awake throughout the entire process, in which the surgeon opened her chest, removed her rib and some tissues, and took her heart from her body. The surgery was a remarkable success!

Another fully conscious patient had a tumor removed from her throat, but she never twitched when the surgeon made an incision in her throat. Instead, she could sit up, eat an orange, smile, and walk out of the operating room immediately after the last suture was tied!

The only anesthesia used in both operations was Chinese acupuncture needles, as reported in The New York Times on 24 May 1971.

Application of Acupuncture to Anesthesia for Surgical Operation

For centuries, acupuncture has been widely practiced in the Chinese history of medicine to relieve pain and promote healing. It involves the penetration of thin needles into specific points on the body to stimulate physiological responses, generate energy flow, restore inner balance, and promote overall wellness.

Acupuncture anesthesia is a technique that applies acupuncture to induce a state of analgesia for surgical procedures. It is an innovative approach that combines ancient acupuncture techniques with modern medical practice.

The concept of using acupuncture as the sole anesthesia for surgical operation aroused tremendous attention worldwide in 1971 when an extraordinary case of open-heart surgery, with only acupuncture for pain management, was successfully demonstrated in China.

Breakthrough with China's Great Invention

In the past, surgical interventions were unimaginable due to the intolerable pain patients had to suffer. Widely recognized as the birthplace of many scientific inventions and technological innovations, China has endeavored to discover means of reducing human suffering and making surgical interventions less traumatic.

The earliest evidence of acupuncture anesthesia can be traced in historical texts such as the Yellow Emperor's Inner Canon. These texts record ancient Chinese use of acupuncture to treat pain over 2,000 years ago.

Undoubtedly, the development of acupuncture anesthesia is regarded as one of the most remarkable achievements of China. It is a significant breakthrough that has transformed patient experience and had a profound impact on the field of medicine.

This great invention of China has not only saved countless lives, facilitating surgical procedures previously deemed impossible but also contributed to the understanding and application of alternative means of anesthesia to enhance patient comfort and overall outcome.

Mechanisms Behind the Ancient Method

How do the Chinese acupuncture needles work?

The growing popularity of acupuncture due to its effectiveness has sparked considerable interest in exploring and experimenting with this ancient practice.

Extensive research has been conducted on the neurophysiological mechanisms behind acupuncture anesthesia, taking potential placebo effects into consideration. It provides clinical evidence, including neuroimaging studies and analysis, and valuable insight into how acupuncture produces analgesic effects.

From a scientific perspective, findings indicate that acupuncture can influence the perception of pain by triggering the release of natural pain suppressors, such as endogenous opioids (e.g., endorphins, enkephalins, and dynorphins), mood-enhancing substances like serotonin, and other neurotransmitters that bind to receptors in the nervous systems. These substances modulate pain signals transmitted to the brain.

Potential Benefits of Acupuncture Anesthesia

Pain management is essential in ensuring patient comfort and safety during operation. Both ancient Chinese acupuncture techniques and modern anesthetic practices aim to alleviate pain and facilitate medical treatments.

Acupuncture anesthesia can be a viable alternative to conventional anesthesia, achieving similar outcomes without using pharmaceutical agents, which have certain drawbacks and limitations.

While some people remain skeptical about the effectiveness of such an ancient method, proponents of acupuncture anesthesia suggest that it offers the following potential benefits: (i) reduced risks associated with pharmaceutical agents, (ii) an effective solution for patients sensitive, allergic, or intolerant to anesthetic medication, (iii) faster recovery, and (iv) affordability and accessibility for people with limited resources.

Firstly, acupuncture anesthesia eliminates the risks and side effects associated with high doses of pharmaceutical agents to induce a state of unconsciousness, including adverse reactions and complications in the cardiovascular, respiratory, and central nervous systems. It is safer for patients with underlying medical conditions or at higher risk of complications.

Secondly, acupuncture anesthesia is an effective solution for patients with contraindications that preclude the use of anesthetic medication, such as organ dysfunctions or adverse reactions from sensitivity, allergy, or intolerance to drugs. Indeed, it is good news for patients who otherwise have to tolerate severe pain from surgical interventions.

Thirdly, acupuncture anesthesia can result in faster recovery, promote psychological and cardiovascular stability, decrease inflammation and infection rates, and reduce anxiety, stress, and bleeding during surgery by modulating the autonomic nervous system.

Finally, acupuncture anesthesia has proven to be a cost-effective option, eliminating the need for expensive anesthetic medication and monitoring equipment. It opens up opportunities for patients with limited resources or access to advanced medical facilities, substantially reducing the burden on healthcare expenditures.

Combination of Ancient Wisdom and Advanced Science

The invention of Chinese acupuncture needles marks a significant milestone in the development of medical science. Deeply rooted in traditional Chinese medicine, it has been highly integrated into modern medical practice. This unique combination of ancient wisdom and advanced science has stood the test of time, gaining widespread recognition with varying degrees of acceptance and prevalence around the world.

The successful application of acupuncture to anesthesia opens doors, in particular, for patients with limited resources or underlying medical conditions that preclude the use of pharmaceutical anesthesia.

Without question, many great inventions of China have surpassed its ancient past. The rich knowledge embedded in Chinese wisdom has inspired further development in different aspects of human life and continues to have a lasting impact on human well-being.

New tales of China's inventions

St. Joseph's Primary School, Tai, Sun Hei Curtis – 11

China has invented tons of interesting and useful things that affects the world impressively like gunpowder, compass, papermaking, and printing technology. Some of these inventions doesn't seem big but it plays a very important role in our daily life. For example, kites and fireworks which was used in war time for sending signals, nowadays, we make kites and fireworks show for our leisure time and celebrations. Toothbrush was invented in China approximately 200 years ago for tooth cleaning by using pig's hair. Among all these interesting inventions, have you ever imagined that robots were invented and created by China!

Ancient robots were invented and created during BC 770 to BC 256 in China. Compared to the AI electrical robots invented nowadays, ancient robots are different. Although it is called robots, it cannot do complicated calculations like our supercomputer today. However, these ancient robots helped the China emperors in their dynasties.

You might wonder, how and why these robots are invented? What is their purpose for the inventions? Let's jump on my private time travel machine and I'll bring you for an ancient China robot tour. Hold on tight and let's go!

The first stop we are going to visit is in Western Zhou Dynasty (10th century – 771 B.C.). Can you imagine that dancing robot was firstly invented by China! King Mu (976 – 922 B.C.) of the Western Zhou Dynasty once conducted an inspection tour of the west of his empire. A craftsman named Yan Shi made a robot to entertain King Mu during the inspection tour. This robot could sing and dance like a real person! It also had extremely realistic organs, bones, muscles, joints, skin, and hair! More mechanism robots can be found in the China history afterwards.

Let's follow me to the next stop where we will visit a monk in the Northern Qi Dynasty (550–577 A.D.). A monk called Ling Zhao who had many creative ideas. The encouragement and support of Emperor Wu Cheng provided huge impetus to Ling. He proudly turned all his creative ideas into creative inventions. At the command of Emperor Wu Cheng, Ling built a long pool next to a mountain pavilion where Emperor Wu Cheng could enjoy a feast next to the pool. Ling also built a miniature boat with exquisite details and put it in the water. Now, please hold your breath and guess what happened to this miniature boat! When the miniature boat flowed in front of the emperor and when he took a wine cup from it, the boat would stop automatically! Then the small wooden man on the boat would clap its hands, and the boat would start to play music! When Emperor Wu Cheng finished drinking and put down the wine cup, the small wooden man would take the cup back to the boat. If Emperor Wu Cheng did not finish drinking the wine in the cup, the boat would stay there and would not leave! Isn't that amazing?

Finally, have you ever heard of a robot which could catch fishes in Tong Dynasty? This robot looks like an otter and is used in a lake. How did it work? You can put some baits in its mouth and tied it with a stone. When a fish swims into its mouth, the component inside the robot moves and the stone drops, which makes the "otter" float. What an ingenious idea for catching fish!

Although robots in the ancient China couldn't do sums, it motivated the scientists nowadays to invent the AI. They are important to AI because they are the blueprint of the AI we commonly use nowadays. Without the 'old' robots, we wouldn't have created AI for use nowadays. AI nowadays can drive cars automatically, clean the tunnels and underground where human hardly want to do. They also even control industrial machines and build houses for us. Without the invention of the robots in the past, our live wouldn't have been so easy. AI can create beautiful picture within seconds, which saves lots of time. You can even kill two birds with one stone by letting the AI to create the blueprint and let yourself to draw the picture, which saves tons of time on thinking about how to draw the picture. Also, AI could answer questions immediately which reduce the amount of time used on researching. The productivity of artificial intelligence may boost our workplaces, which will benefit people by

enabling them to do more work. As the future of AI replaces tedious or dangerous tasks, the human workforce is liberated to focus on tasks for which they are more equipped, such as those requiring creativity and empathy.

Come on, let's jump on my private time travel machine again. Let's travel to the future and see what is in our world! Let's go! 100 years later, AI can control airplanes to fly which can reduce the number of flight accidents caused by human mistakes. AI could do the initial examination, take tests, do X-rays and MRIs, plus making primary diagnosis! It can greatly reduce the amount of death caused by human mistakes or careless miss. It can also get to know the patient's condition more efficiently and accurately, in which we can take the needed early treatment as soon as possible.

Ladies and gentlemen, welcome back in 2023. Can you imagine how our world will look like if there is no evolution and development of robots and AI in the past? Let's keep our imagination and creatively open for our bright future.

From Amazing Genes to Amazing Grains

St. Joseph's Primary School, Tam, Ching Yuk Eason – 11

《憫農》 唐·李紳

鋤禾日當午，汗滴禾下土。誰知盤中餐，粒粒皆辛苦。

"Compassion For Farmers" by Li Shen (Tang Dynasty)

At high noon, the farmer is wielding his hoe,

Sweat dripping, falling onto the rice paddy below.

Who knows, as we dine,

Each grain in your bowl bears labours' sign.

Over the past 35 years, China has been working relentlessly on hunger and poverty reduction. According to the World Food Programme, since 2015, China has met its Millennium Development Goal of halving the number of hungry population and brought down the global hunger rate by two-thirds. However, there are still 150.8 million people who are malnourished. Obviously, it should come as no surprise that there are wide gaps in nutritional status between urban and rural areas—especially in remote and mountainous areas. Given the size of China's population, rates of 9.4 percent for stunting in children and 19.6 percent for anemia illustrate significant national and global burdens. In 2022, three Chinese scientists timely discovered a genetic strategy for improving crop yields which will probably bring our world a strong food security in the future.

On March 25th, 2022, Chinese scientists Professors Jian Sheng Li and Xiao Hong Yang from China Agriculture University and Professor Jian Bing Yan from Huazhong Agriculture University published their discovery on how to increase the production of maize and rice. Their paper "Convergent selection of a WD 40 protein that enhances grain yield in rice and maize" was published in the "Science" magazine after eighteen years of hard work. Their results not only can help increase the production of maize and rice but also can solve the problem of malnourishment and poverty. They identified two critical genes called KRN2 and OsKRN2 in maize and rice respectively. By editing the two genes, they can control the number of maize and rice produced. They further found that knockout of genes KRN2 in maize and OsKRN2 in rice can increase grain yield by increasing kernel rows and secondary panicle branches respectively. As a result, the

grain production can be raised by ten and eight percent without an apparent negative impact on other agronomic characteristics. Besides, Professor Yan explained that their next step would be focusing on the gene *KRN2* and building innovation teams for gene breeding. Eventually, the new breed can be promoted, released, and sold on the market.

How would this discovery make an impact on all of us? According to the United Nation's Food and Agriculture Organisation (FAO) indicated that more than 50% of all human calories come from just three plants and they are rice, maize, and wheat. At this point, the Professors' discovery not only finds out the mechanism of increasing yields of maize and rice but also provides a theoretical foundation for enhancements of other economically important crops, such as wheat, barley, and sorghum. After that, the production of these main cereals may also be raised by the same method. Unbelievably, these staple crops are feeding more than 7 billion of the world's population now confirms that this discovery from the three Chinese scientists will impact every one of us on the planet ultimately. Other than the main crops, vegetables could also be unexpectedly benefited too. "This morning, a scientist researching vegetables messaged me and thanked us for the inspiration from our research findings," said Professor Yan excitedly to a reporter.

Furthermore, the ever-growing world population is escalating the food security crisis. On the word of a new report by the World Resources Institute, the World Bank, and the United Nations, the trajectory for crop yields is inadequate to nourish the world's population by 2050, which is a whopping 9.7 billion people. But currently, cultivatable land is simply not evenly distributed amongst all the countries over the world, so many places still have poverty. If food trends remain unchanged, then 593 million hectares of land, equivalent to two Indias, would have to be cleared and turned into crop and livestock production to feed all the people in poverty, which is talking about more than 828 million people. Moreover, there are other upcoming threats to crop yields such as heat waves, precipitation, and other extreme weather. This research can help enhance sustainable crop production and the high yields of the staple crops are vital to feed a growing population.

The three scientists' discovery was the most inspiring and meaningful breakthrough for me from China's Top Ten Breakthroughs in Science and Technology in 2022, which were selected by the members of the Chinese Academy of Sciences and the Chinese Academy of Engineering, among the 4 entries in space exploration and observation, 2 entries in biotechnology related to agriculture, 2 entries in earth and environmental sciences, and 2 entries in fundamental physics because it not only can solve the hunger problem in China, but it can also prevent 828 million people in the world from starvation. The 18 years of persistent pursuit of the three scientists strikes me like lightning. Genome technology will bring big changes to us and I am inspired to become a genome scientist to support the farmers to develop new and better breeds that produce

more yields and require no pesticides or herbicides. Hopefully, the world is free of hunger and poverty out of poor crop yields.

The poem I quoted at the beginning "Compassion For Farmers" was the poem my teacher taught us when I was studying Primary Two in Beijing. The first time I heard this poem was when I was having lunch, everyone swallowed down the meat and vegetables hungrily, but we all ate the rice reluctantly. Then, my class teacher retold us a story from her grandfather's own experience. Her grandfather lived during the Second Sino-Japanese War, while there was starvation everywhere, and even a little food was an amazing gift to him and his family. It was hard to imagine how they could only survive on eating leaves or tree bark. Survival was almost impossible! All of us felt very ashamed after hearing this story. Since then, I learned to cherish food and natural resources, and respect farmers by finishing every single amazing grain in my bowl.

The Four Great Inventions

St. Joseph's Primary School, Thong, Kwan Yuen – 10

Have you ever heard about the “The Four Great Inventions” before? I’ll explain the stories of these four inventions, and how without them we can’t have some things that appear in our daily lives.

Firstly, let’s talk about the compass. At around 206 BC, during the Chinese Song dynasty, Shen Kuo, an ingenious scientist, made a compass out of iron needles, magnetized by striking them with a lodestone to tell which direction was which, and the marked end would “pull” towards Earth’s magnetic North Pole. The first-ever usage of a compass was recorded in Western Europe around 1190.

Next, we’ll talk about gunpowder. 9th century AD during the Tang dynasty gunpowder appeared first in a formula contained in the “Taishang Shengzu Jindan Mijue” in 808, and then about 50 years later in a Taoist text called the “Zhenyuan miaodao yaolue”. According to it, “Some people have heated together sulphur, realgar and saltpetre with honey; smoke and flames to make a black powder. The result was that their hands and faces have been burnt, even the whole house where they were working burned down.” It is most likely that the invention of gunpowder was fortuitous, and not done for experimental purposes. Gunpowder is also used to make fireworks and lethal weapons needed to kill people quickly in wars. Think about if gunpowder was never invented, so many people wouldn’t be starving, homeless and dead right now because of wars, fireworks wouldn’t be a thing anymore and most people’s joy would be no more.

We then have printing, during 3000 BCE, When the proto-Elamite and Sumerian civilisations used cylinder seals to certify documents written in clay tablets. Other forms of printing include block seals, hammered coinage, pottery imprints and cloth printing. Initially, a method of printing on cloth such as silk and woodblock printing for texts on paper originated in China in the 7th century, leading to the rapid spread of book production and woodblock printing in other countries in Asia. This considerably impacted the world and authors could produce books more efficiently and less costly. Printing has developed even more nowadays. We can just buy a printer and computer to print out whatever we want, or, for a cheaper price, go to a printing shop and ask them to print out whatever we want. Could you imagine being stuck in ancient China and having to print the old-fashioned way? That would be too time-wasting and absurd.

Finally, there’s papermaking. Hemp paper has been used since the 8th century BCE in China. An official attached to the imperial court during the Han Dynasty, Cai Lun, is said to have invented paper about 105 CE using mulberry and other bast fibres along with fishnets, old rags and hemp waste. It later spread to the 8th century to the Islamic world, where the process was refined, and machinery was designed for bulk manufacturing. It expeditiously spread across the world, and this innovation helped transform papermaking from an art into a major industry. These days, most types of papermaking are made by using a dilute suspension consisting of mostly separate cellulose fibres in water drained through a sieve-like screen, so that a mat of randomly interwoven fibres is laid down. Water is further removed from this sheet by pressing, aided by a suction vacuum, or heating. Once dried, an ordinary sheet of paper is made. This process is shortened thanks to machinery, and 65 billion sheets of paper are produced every day. However, more and more trees are getting cut every day, global warming will increase by 10% every year, and global temperatures will rise gradually, so people are creating environmentally friendly paper so that they don’t have to cut down so many trees.

To conclude, if these 4 things weren’t invented, humanity wouldn’t be the same as it is now, and our daily lives wouldn’t be so convenient now. So many things wouldn’t have appeared in our daily lives if it weren’t for these 3 inventors and people in Ancient China.

New Tales of China's Inventions: The beads that changed the world

St. Joseph's Primary School, Tsui, Zedric – 10

Apart from the four great inventions which are papermaking, printing, the compass, and gunpowder, do you know that China has a rich history of inventions that have significantly shaped the world and continue to contribute to a better future? And who can forget the ingenious abacus, an ancient calculating device known as 'the oldest computer in the world'?

Let us transport ourselves to ancient China,
where tales of brilliant inventors crafting remarkable creations abound.....

Ming Dynasty (1368–1644) was a period of prosperity characterized by increasing trade and commerce. A complex system of taxation emerged to regulate and finance the growing society. One evening, Cheng Dawei (1533–1606), a businessman from Anhui who started to do business at the age of 20, found himself struggling to figure out the exact profit he had earned after considering the multitude of tax components. To overcome this difficulty, Cheng recognized a pressing need for a tool that could simplify complex calculations. Driven by his inventive spirit and a thirst for knowledge, he decided to immerse himself in the world of mathematics. Conducting extensive research on mathematical skills, he ultimately invented a revolutionary device – the Suan-Pan abacus. This ancient calculating tool made of a wooden frame with rows of metal beads or stones on rods, allowed people to perform basic arithmetic operations such as addition, subtraction, multiplication and division. At the age of 60, Cheng further enhanced his invention by publishing the Suanfa Tongzong (General Source of Computational Methods), a guide designed to be used with the abacus. With his invention, he was able to calculate his income and expenses far more easily than ever before. Undeniably, the abacus stands as a powerful symbol of humanity's incredible ability to innovate and create sophisticated tools to overcome challenges.

Chinese Economy and Society

It is without a doubt that the abacus has played a major role in shaping the development of the Chinese economy and advancing society. During the Ming Dynasty, with the development of China's handicraft industry, and the expansion of foreign trade, many individuals recognized the abacus as an essential tool for its ability to enable precise calculations. Armed with this powerful tool, merchants were able to accurately determine the surplus income available for investments. This presented a remarkable opportunity for them to grow their wealth and make substantial contributions to the economy. The economic growth fueled by their investments generated employment opportunities, providing livelihoods for many individuals and improving their overall well-being. Additionally, this growth sparked innovation and business development, driving advancements in various fields and ultimately fostering rising prosperity for China's economy and society.

Chinese Culture and that of Neighboring Countries

The impact of abacus usage had a profound influence on Chinese culture and neighboring countries. In Chinese education, the abacus played a crucial role in teaching mathematics and fostering a deep understanding of numerical concepts among students. The use of abacus was integrated into the curriculum of Chinese schools, providing a tangible and visual representation of numbers and calculations, which helped students grasp mathematical concepts more concretely. Its influence on Chinese culture is evident in its status as a symbol of intelligence and mental agility. Moreover, the impact of the abacus extended beyond Chinese borders and influenced neighboring societies as well. The General Source of Computational Methods by Cheng Dawei reached Japan, greatly influencing Japanese mathematics. The influence drove Japan, Korea, and other countries to recognize the value of the abacus and adopted it, incorporating it into their own cultures and educational systems. The abacus became an essential tool for trade, education, and cultural exchange in these countries, contributing to the development and advancement of their respective societies.

The beads have changed the world.

Education

The impact of the abacus reaches far beyond its conventional role as a calculating tool. Its influence is observed globally, as people acknowledge its capacity to enhance mental visualization. Utilizing the abacus demands focused concentration and mental discipline, making it a valuable instrument for improving cognitive abilities. Manipulating the beads and performing calculations on the abacus engages the mind, eyes, and hands, honing attention to detail, memory, and problem-solving skills. Consequently, students who undergo abacus education often display heightened focus and concentration in both academic and non-academic activities. Today, Zhusuan, the practice of abacus usage, is widely recognized as China's fifth great invention. Through regular abacus practice, students strengthen their mental visualization skills, enabling them to tackle complex mathematical problems more efficiently. This skill extends beyond mathematics and can benefit them in other subjects that require visual thinking, such as science and engineering.

Modern Technology

Moreover, the abacus has left a lasting imprint on modern technology. The electronic calculator, for instance, draws inspiration from the abacus, building upon its foundations to provide convenient and efficient calculations. The influence of the abacus is not limited to calculators; it has also shaped the design and functionality of computers and digital devices like smartphones. The abacus's core idea of storing and manipulating numerical data serves as the basis for modern computing. The binary system, with its representation of values and positions using 0s and 1s, can be likened to the beads on the abacus rods, showcasing the abacus's influence on the very fabric of contemporary technology.

In conclusion, the abacus has transcended its traditional role as a calculating tool, leaving an indelible mark on various aspects of modern society. From its origins in ancient China, the principles and concepts underlying the abacus, along with the mental visualization skills and cognitive abilities it enhances, continue to shape the development of intelligent technologies. The beads on the abacus have truly changed the world. In December 2013, the abacus was listed as a World Intangible Cultural Heritage by the United Nations Educational, Scientific and Cultural Organization (UNESCO). As we appreciate the profound impact of the abacus, we are reminded of the remarkable contributions made by ancient inventors, and we are inspired to encourage a culture of curiosity, diversity, and innovation.

New Tales of China's Inventions

St. Joseph's Primary School, Wong, Bak Nik – 11

In the state where the so-called Four Great Inventions in paper, printing, compass and gunpowder were born, we notice that our Chinese ancestors were already the pioneers for invention and innovation. They introduced the Chinese people and the people in other parts of the world to those remarkable inventions and technologies that laid the foundation for our modern society.

As we know, China's inventions have a rich history and play a vital role in the development of global economics and culture. The Four Great Inventions have played an important role in global innovation and revolution for centuries. Paper-making technology, invented by Cai Lun in the 2nd century, had led up to revolution for communication. The invention of printing by Bi Sheng sparked off the spread of various knowledge and information on paper from one to others. The discovery of gunpowder created the use of firearms and cannon that had made some enormous impacts on the war between countries and developed more strategies for fighting the war. The invention of the compass has played a significant role in the navigation and exploration of lands and seas, and set up the platforms for transportation and trade networks between people in various areas and even countries.

China has set up a new chapter of innovation from the past achievements to modern breakthroughs by telling the story of China's invention that continues to influence the world. There are nowadays more Chinese inventions and scientific breakthroughs, such as the green energy revolution, artificial intelligence, high-speed transportation and so forth that have taken the modern world by storm.

To cite some examples, China's continuous quest and growth for green energy has brought in the production and use of sky wind turbines and solar panels. As the world's largest and the most advanced green energy production, China has embraced the Sun and soaring sky as the power fields for new electricity generation.

Sky Wind Turbines are much lighter and stronger than the conventional turbines, with the large aerodynamic blades that harness the steady breezes at higher elevation and give a more consistent and efficient energy output. Regarding solar energy, China is a world leader in solar panel production and technology. Chinese researchers and companies have made significant advancements in increasing the efficiency of solar panels, which directly impacts the amount of electricity generated from sunlight. Moreover, Chinese companies have also made significant improvements on the durability and performance of solar panels, which are now produced more reliable and cost-effective. This makes China the biggest manufacturer and exporter of solar panels worldwide.

China's advance in green energy production efficiency and the continuous development have established itself as an innovator to harness the natural resources to combat climate change and possible energy crisis, and reduce our reliance on fossil fuels.

Furthermore, during the past decade, China has made significant strides in the field of artificial intelligence, which is best known as "AI". Some Chinese companies such as Baidu, Alibaba and SenseTime are at the forefront of AI development, and have made breakthroughs in different areas such as facial recognition technology, natural language processing and autonomous driving.

While China is now at the forefront of developing and deploying facial recognition technology for many applications in public security, surveillance, and commercial uses, Chinese researchers and companies are making vital contributions to speech recognition technology, with their main applications in virtual assistants, language translation, and customer service.

In addition, China is investing manpower and resources in AI applications for healthcare aspects such as medical imaging analysis and drug discovery. Companies like Ping A Technology develop AI-powered healthcare technology

and solutions for some diagnosis of serious diseases such as cancer and heart conditions. They have also developed AI to analyze medical images such as X-rays, CT scans to aid early detection and treatment of diseases.

As there is a large population in China, AI has been recently utilized to analyze vast amounts of patient data such as genetics and medical history to provide more personalized treatment recommendations. In order to allow patients to consult doctors remotely in the vast and extensive territory in China, AI-powered telemedicine platforms are in place to integrate AI tools and virtual consultation services to expand access to healthcare services.

What's more, Chinese researchers have created different advanced ways of transportation. A Chinese company has developed an autonomous vehicle that can transport passengers and cargo without a pilot. Also, China's advancements in high-speed rail technology have led to the development of the world's fastest train systems which are well known for speed, safety, and efficiency in transportation.

From a few examples of what we have seen, China's inventions have been a game changer and significantly changed the way we live. These inventions represent scientific advancements from China that have the potential to shape various industries and have a significant impact on global innovation and enhance the living standards of the majority of people in the world.

All in all, the tales of China's inventions have not only brought wonder to the world, but also opened the eyes of the general public to expect more to come.

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary And Primary School,

Ho, Ching Kong Tristan – 9

China has invented many things and developed them very well, such as paper money, compass, printing methods etc.

But today, I would like to share gunpowder. Gunpowder was invented in the 9th century CE, in China. It was made by a mixture of KNO_3 , charcoal, sulfur and it was an accidental invention.

One day, a man was trying to make some medicine, which would make humans have very long lives. However, the medicine exploded while heated up by the fire. The gunpowder burned down his house. In the beginning gunpowder was used in making fireworks for events or celebrations. Gradually, it was used in military. Moreover, fire lances and hand cannons were invented. Fire lances are lances which has gunpowder on the tips. Hand cannons are small and easy to be held in hands. The first hand cannon was called “Xanadu Gun”. Later, gunpowder became even more popular. In 1250 AD, China started to sell gunpowder to Europe throughout the Silk Road. Not long after, Europe invented the first ever pistol. Nowadays, gunpowder is still often used in side bullets.

This is my topic for today. Thank you for reading my article and I hope you understand more about gunpowder.

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary And Primary School,

Ng, Chit Hang Nathan – 9

Most people know about the four great inventions of ancient china. Compass, gunpowder, papermaking and printing. They are all really useful. For example, the compass being one of the most important instrument in navigation, while there was no printing Rustichello of Pisa the writer of The Travels of Marco Polo had to copy the same thing over and over again!

You might know about the four great inventions of ancient china but did you know that china created stuff like toilet paper, missiles and clocks? Today I'm going to talk about some of ancient China's inventions that you might not know about like for example.

1. Clock 725 AD

Yi Xing was a Chinese astronomer, Buddhist monk, inventor, mathematician, mechanical engineer and philosopher. He made the first ever clock named Water-driven Spherical Birds in 725 AD. It was operated by dripping water which powered a wheel that made one revolution in 24 hours/1 day. It was also completely driven by hydro power the clock is also referred to as an astronomical clock.

However, Yi Xing was not the first one to use hydraulic power. Zhang Heng was the one that inspired Yi Xing to make such an invention. Yi Xing's achievements were built upon the knowledge of Zhang Heng.

2. Silk 6000 years ago

According to Chinese myth, silk cloth was invented by Hsi-Ling-Shih the wife of The Yellow Emperor. The Yellow Emperor is said to have ruled over China in around 3000 B.C.

For a long Time, silk was only for a select few only reserved for people close to him like family members and high rank soldiers, some super ancient books wrote about how the Emperor always wore white silk. Slowly, more people were able to wear silk clothes and decorate with silk ornaments.

During the Han Dynasty, silk became a kind of a currency. There are for instance farmers who paid taxes using grain or silk. Silk was also highly valued outside of China, for example Europe tried to find a way to Asia/China for goods like silk and spices.

After that Gothic leader Alaric hid all the silk in the world inside Dunhuang. He hid it so well it remained hidden for nearly 900 years.

3. The Kite 3000 years ago

We all love playing kite flying and seeing all the marvelous kites flying in the air majestically. Well, we can thank Mozi and Lu Ban in ancient times for using wood and cloth. Mozi and Lu Ban were two philosophers who invented kites. Kites were invented in the early Warring States Period (221 – 475 B.C.).

The kites were exclusive to China. Mainly they were used for military purposes the kites were used for measuring distances, which was useful for moving large armies across terrain, record wind readings and provided a form of communication similar to a flare gun.

Chinese kites now usually represent mythological or legendary, animals, characters, symbolic creatures and figures, but the creators of the kites we use nowadays are from the Tang dynasty's people.

All of these wonderful inventions really show us that China is a really creative country! However, China is not the only country that has crazy inventions. Countries like America have crazy inventions too! There is one thing I learnt from this journey is that humans can imagine anything so if you try hard enough, you can achieve your goals.

Smart Contact Lenses – The Greatest Innovative Gadget made in China

St. Mary's Canossian School, Chan, Hei Man – 11

The Chinese have long regarded glasses as an important daily necessity. In ancient China, people secured glasses with ribbons and draped them over the top of their ears with small weights at the bottom of the ribbons to keep them in place. In the 12th century, sunglasses were made of transparent quartz stones in China. They were used by the judges in order to prevent people from reading their facial expressions. All these reflect the importance of the Chinese attaching to glasses.

Over the past decades, smartphones are gaining their popularity, and it is hard to imagine how life would be like without smartphones. Someone thinks that the development of smartphones has reached its limit, hence there would be no more advancement in the development of smartphones.

From my point of view, although smartphones have improved dramatically throughout the years, it does not mean that mobile phones have reached their technical limits. A major problem that developers have yet to solve is – How can people free their hands while using smartphones? To tackle that, I have an idea – If I could incorporate a smartphone with a built-in software in piece of lenses, it would be an innovative gadget!”

This future Chinese invention which will change the world is called the “Smart Contact Lenses”. The device combines contact lenses and smartphones together so that we do not have to worry about forgetting to bring or losing our smartphones anymore. They look the same as the normal contact lenses, when you place them on your eyes, you can start thinking about what you want to look for, and then the lenses will come up with the results of your search. You do not need to use a private screen any longer as no one can see what you are watching or reading. Moreover, the product is eco-friendly, when the smart contact lenses are in touch with human tears, they can charge up without using electricity!

Here is an example on how it functions. If you want to search for information about “refraction of light”, all you have to do is simply put on the contact lenses and keep thinking “refraction of light” in your mind. Then, the lenses will come up with all the information you need. Actually, you can search for all kinds of information, just like what you do using smartphones and computers.

Other than searching information, Smart Contact Lenses can be used for sending text messages. To do this, you can first synchronize your contact list from your smartphones to the contact lenses, then you can communicate with others whenever you want. In addition to sending text messages, the smart contact lenses can help make phone calls too. It works similar to sending messages, but the most delighted thing is that we no longer need any headphones or hands-free equipment now as smart contact lenses will transmit the voice through signals instead.

All in all, “Smart Contact Lenses” can make our lives more convenient and efficient. This ground-breaking invention can definitely help people with disabilities, such as amputees who accidentally lost their arms would be able to search for information, make phone calls and send messages. There are lots of advantages in this innovative product. I am not going to introduce it one by one here, but I will leave it to you to explore further! The invention will have far-reaching consequences on our daily lives. Undoubtedly, “Smart Contact Lenses” must be the greatest invention made in China!

Magnetic Levitation Train or Light Speed Train

St. Mary's Canossian School, Chan, Kei Tung – 10

Have you ever heard of the magnetic levitation train? It is a brilliant Chinese invention that has changed everything in China. The magnetic levitation train in China only travels in Shanghai. A magnetic levitation train consists of 16 carriages, carrying up to 1,000 passengers at a time. It cuts the current travel time by more than half, from 90 to 40 minutes. It is not only the fastest train in the world, but also the safest and most comfortable rapid transit system in the world. Many people may wonder, “Why aren’t there magnetic levitation trains everywhere?” The main reason is that the magnetic levitation trains are very expensive. Therefore, many countries raise concerns over innovative railway system.

On one hand, there are many benefits brought by the magnetic levitation train. On the other hand, there are also numerous shortcomings coming from it. For example, the magnetic levitation train produces high noise levels at speeds of more than 250 kilometres per hour, which may affect the health and well-being of residents living nearby the rail. However, have you ever imagined that a train that is cheap, quiet and environmentally friendly? In the future, I think that there will be a brilliant train system called Light Speed Train. It uses the materials that come from space. The materials from space can change into energy like fuel that make the train travels like light speed. It is suitable for different countries with different landscapes!

Light Speed Train can take you to faraway places quickly. You can arrive at your destination in the twinkling of an eye, as compared to travelling by train or plane. Imagine how exciting that would be! Another great thing is that the Light Speed Train is very safe. It has sensors all over the carriages to keep everyone safe. So, you don’t have to worry about accidents like with car or plane crashes.

And guess what? Light Speed Train is good for the environment too! It doesn’t use things pollute the air. It releases purified air. That means it helps to keep our planet nice and clean. Light Speed Train is really important for China’s future. It can help with traffic problems. You know how sometimes the roads get really crowded and it takes a long time to get somewhere? Well, Light Speed Train can go on special tracks, so it doesn’t get stuck in traffic. It can zoom through cities really fast and make traveling much easier! The Light Speed Train can help the economy grow. By connecting different cities, it makes it easier for people to travel and do business that means more jobs and more money for everyone.

Lastly, this invention can get more great ideas. When people see how amazing Light Speed Train is, it can make them want to come up with even more cool things. That’s how progress happens! Now, you can see why the Light Speed Train is such an amazing invention. It is really fast, super safe and truly good for the environment. It can solve transportation problems and help the economy. I can’t wait for the day when we can all ride on the Light Speed Train and have an incredible adventure! Let’s dream of the bright future of China together!

A Chinese Invention that will Change the Word – Translator Glasses

St. Mary's Canossian College, Kwok, Ching Yin Stephanie – 10

Nowadays, China has become the world leader in various aspects. If you want to understand more about Chinese inventions deeply, you need to know Chinese culture well and learn Chinese language. However, Chinese is not easy to learn. With over 50,000 unique characters, in which each character represents a syllable and a meaning, one may feel overwhelming to even think about learning it. To ensure that information is precisely conveyed and to break down language barriers, you need the following latest invention – Translator Glasses (TG).

TG is a marvellous invention that will change the world. This supercalifragilisticexpialidocious gadget can change our future and magically improve the lives of people once and for all. Since the dawn of time, people have started to invent and create new and special equipment or beautiful luxuries for everyone to lead an efficient life. Now I have to show you the latest Chinese invention, TG. When someone wears it, it is invisible to others. No one will know you are using it. So, what does TG do? Have you ever encountered any Chinese texts or poems that you wanted to translate to your own language? How about some Chinese sketches or paintings that you wanted to understand? TG is the best solution for you. Each one of them can be tailor-made and will suit you best.

How about the amazing features? As they are tailor-made, customisable secret buttons will be situated in the best place for you. A round button will be made to turn the glasses on and off whereas a triangular one will be installed to let you pre-set your language. Then, all you need to do is to place the Chinese drawings or readings in front of your eyes and “ta-da”! It only takes two seconds to translate and the explanations are right in front your eyes. How convenient! To keep a record, simply double click the square button to save it for further reference.

With the rapid development of Chinese science and technology, a lot of theses and research in Chinese are needed to be shared with the world promptly. For example, traditional Chinese medicine has become more popular and effective especially during the pandemic of COVID-19. Lianhua Qingwen capsules were widely used in the western world to treat COVID-19 patients. The combination of traditional Chinese and Western medicine will definitely knock our socks off in the coming future. However, the notes and prescriptions of doctors are often handwritten and they look like random scrawls for outsiders. With TG, all the notes and prescriptions can be deciphered and translated in no time. It will be very useful for doctors and scientists around the world because they can now read about medicines and scientific explanations which are written in Chinese.

Do you want to have a pair of TG? I cannot wait to see this invention be launched! Then, I can read all the books in the world whatever languages they are written in and I can spread new information, knowledge and ideas effectively with people around the world!

The New Era of Travelling in China

St. Mary's Canossian College, Leong, Sing Yu Cintia – 10

Our ancestors, the ancient Chinese, are known for their inventions that still are used in the modern day. They are namely papermaking, gunpowder, printing and the compass. These four legendary inventions have had tremendous impacts on the development of global civilisation. Presently, four China's technological innovations – dockless shared bicycles, high-speed rail, mobile and online payment services as well as e-commerce, with a reputation that bark back to the “four great inventions” of ancient Chinese, have been exceptionally developed in China as they have become deep rooted in our daily life.

It got me thinking, what would be the next innovation that will power the future and change our tomorrow for the best? Since China is the world's largest emitter of carbon dioxide (CO₂) – the primary driver of climate change, we have faced widespread criticism to address environmental concerns. If we could not cut our CO₂ emissions in the atmosphere, it could be consequential for the world on combating climate change.

I believe we could combine the four latest innovations to create a cutting-edge public transport system which we could all participate and help cutting our CO₂ emissions. I am calling it the Orbit.

Borrowing the technology of high-speed rail, the Orbit is a high-speed electric vehicle which drives on its own and can take up to 4 passengers at a time. The Orbit can travel on the road, under the water, along cycle lanes and underground tracks. I called it the Orbit because it is sphere shaped. The upper half will be made out of glass so that passengers can enjoy the scenery while travelling. The bottom half will have four sets of pedals where each of the passengers will be able to help boosting its power by pedalling. Here comes an amazing feature – the harder they pedal, the less fare they will have to pay. And of course, all payment will be paid using smartphones or online payment services.

Underneath each of the Orbit will be an Artificial Intelligent (AI) computer that is linked to a super-giant computer using Wi-Fi technology. The super-giant computer can examine the latest traffic conditions and weather forecast for the Orbit and identify the most ideal combination of any set of 4 passengers to ride on the Orbit and travel to their destinations by selecting the quickest route. All the passengers can leisurely board on the Orbit at the requested time or locate the nearest Orbit with their smartphones, get off the Orbit once they are arrived or anywhere on the street without the need to stop at a specific station or bus stop, and pay for the fare conveniently by scanning a QR code. The super-giant computer will store our journey patterns and forecast when and where to go for our next ride. The more we ride on the Orbit, the smarter it will become and therefore more convenient for us all.

By combining smartphones, high-speed technology and super-giant computer, the Orbit would be an AI shared taxi transport system that is convenient and affordable transport alternative to private vehicles. It will encourage more people to use shared public transport, reducing traffic jam and cutting CO₂ emission. And with a population exceeding 1.4 billion, China could be at the forefront in the widespread adoption of the latest innovations to combat climate change.

Sir Charles Kao Kuen

St. Paul's Co-educational College Primary School, Chan, Hylia – 11

Ever since the four great inventions of China, China has become one of the world leaders in inventing, nurturing many great inventors. Among them all, Sir Charles Kao Kuen stands out.

Sir Charles Kao Kuen was a respectable and selfless Chinese inventor, and up to this day, people still praise him for his discovery, telecommunication using optical fibres.

Charles was born on 4th November, 1933 in Shanghai. His father, Kao Chun Hsin studied law and married a poet.

When the Japanese invaded China in the 1930s, Charles and his family were shielded from the terror that reigned outside. Sadly, the end of war with Japan didn't bring peace. Soon, the Red Army was prepared to attack the city. In 1948, the family decided to leave Shanghai for safety. On that dreadful day, it was the last time they'd see their homeland for many years.

A short sojourn in Taipei convinced Charles' father that Hong Kong would be a better refuge. So, the family settled in a modest apartment there and the boys were enrolled into St. Joseph's College.

Charles did well academically and mostly got A's in the school matriculation exams, which granted him entry to the University of Hong Kong. However, the University was still in some confusion after the war. Some faculties, including the Electrical Engineering which Charles wanted to study at, were not functioning. Therefore, he went to Woolwich Polytechnic in London to sit for the A-level exams which he passed effortlessly. He graduated in 1957 with a Bachelor of Science in Electrical Engineering.

To relieve his father from the heavy financial burden, Charles started working immediately after graduation. He joined Standard Telephones & Cables (STC), a British subsidiary of International Telephone & Telegraph Co (ITT) in North Woolwich. Charles had gone around to different sections until he decided to stay in the microwave division. During his three years at STC, he married a fellow engineer named Gwen.

Three years passed, and Charles thought it was time to move on and applied for a lectureship at Loughborough Polytechnic. However, seeing Charles' potential, STC thought that the company shouldn't lose him. They offered Charles a chance to transfer to the research lab, STL in Harlow. To make sure Charles stayed, STC even found a job for Gwen at the new place. The offer was too good to refuse. As a result, he stayed with ITT Corp for the next thirty years, working at different locations. Everything seemed perfect, with Charles' parents emigrating to join him and delighted with two grandchildren.

In 1970, The Chinese University of Hong Kong, CUHK, asked Charles to come to the institution to set up an electronics department. STL granted him a two-year leave of absence, which later became four years. Charles could see the first batch of students graduate, and established a graduate program too. During this time, he took annual summer leaves to return to STL to keep alongside developments in optical fibers research.

By 1974, the project Charles had started had advanced to the pre-production development stage. It had gained attention and an industry had formed around it, trying to transform global telecommunications systems and ITT wanted him to rejoin the team for this project.

So, Charles' family moved to the ITT plant in Roanoke, Virginia. He became Chief Scientist and later Vice-President and Director of Engineering in charge of the electro-optical products division. Despite being in the U.S., he continued to travel to research labs worldwide to stay updated on developments.

In the 1980s, the optical fibre industry grew, increasing communication capacity. He became an Executive Scientist at ITT and led the Terabit Optoelectronics Technology Project, which aimed to explore technologies that could transmit capacities of terabits per second. The project involved a chain of universities and institutions. In 1985, he became the Director of Corporate Research at ITT, and during this time, modifications were made to utilize the increased communication capacity, and the internet was born.

Charles was promoted to the President of CUHK in 1986, so he moved to Hong Kong. This move clashed with ITT Corp selling its technical divisions to Alcatel, so Charles parted ways with his colleagues. He was the Vice-Chancellor of CUHK for nine years, during which time Hong Kong was preparing for the resumption of authority by China and the higher education part grew.

Charles' role at CUHK was to create an environment that encouraged people to take on responsibilities and contribute to the University. By creating this space, he allowed the University to develop and let people perform at their best, leading to a new level of development.

After a year of lecture tours around S. E. Asia, Charles stayed in Hong Kong, setting up his own company. He was appointed to miscellaneous companies as non-executive director. In 2009, he moved to California to be closer to his children.

In the past, light transmission through glass was used for various purposes. However, it was not possible to transmit light over long distances before Charles' work, as glass fibres were thought to be unsuitable as a conductor of information because of high signal loss from light scattering. Many research laboratories tried to find a solution, as the public had high expectations. Charles experimented with the failure of light to penetrate glass and discovered a solution. By cautiously purifying the glass, bundles of thin fibres could be produced that could carry lots of information over long distances with low signal diminution and that such fibres could replace copper wires for telecommunication. He had discovered telecommunication using fibre optics!

His revolutionary discovery shocked everyone, but instead of selling his invention at a high price, he generously shared it to the world. In 2009, he won the Nobel Prize in Physics and in 2010, he was knighted by the Queen!

Unfortunately, he was later diagnosed with Alzheimer's disease and passed away on September 23, 2018. Even so, he still has a place in everyone's hearts— not just as a physicist, but as a selfless hero who shared his invention with the whole world.

The Genius of China

St. Paul's Co-educational College Primary School, Man, Hay Yue Amber – 12

Whenever someone asks me who I think the best inventor of China is, they expect me to say Cai Lun, the man who invented paper, or perhaps Yi Sing, the man who developed an astronomical instrument which worked like a clock. What they don't expect me to reply, though, is that I think the genius of China is actually Zhang Heng.

Referred to as the Leonardo da Vinci of China, Zhang Heng was a polymath scientist, astronomer, inventor and statesman. He was born in 78 AD in Nanyang, China, mostly known for inventing things like the seismoscope, seismometer, hydraulic-powered armillary sphere, pi calculation, universal model and lunar eclipse and solar eclipse theory.

The seismoscope is, personally, his biggest and best invention, and also the development that made him the well-known man he is. He created the design of the first ever earthquake sensing device, which could remotely detect earthquakes hundreds, even thousands of kilometers away. The inventor believed that the cause of earthquakes were wind and air – to attempt to indicate the direction of a distant earthquake, his device dropped a bronze ball from one of eight tubed projections shaped as dragon heads into a metal object down below shaped like a frog's mouth, representing the direction in which the seismic wave was travelling. Sadly, there are no physical remains of Zhang Cheng's invention of the seismoscope, although many have tried to construct replicas of the famous, yet mysterious device. However, most experts agree on the fact that it worked on the principal of inertia.

Another example of Zhang Cheng's genius is the hydraulic-powered armillary sphere, pieced together by him with horizontal and meridian rings, the first water-powered armillary by use of an inflow clepsydra clock the world had ever seen. Invented in the Han Dynasty, the scientist's masterstroke was to apply hydraulic motive power by using a waterwheel to rotate the sphere. He invented this stunning object in hopes of assisting astronomical observation, which would aid him at his job as the Chief of Astronomy. The armillary sphere is a model of objects in the sky on the celestial sphere consisting of spherical framework of rings centered on Earth or the Sun, representing lines of celestial longitude and latitude.

After explaining so much about Zhang Cheng's unique and useful inventions, I would also like to provide information about his personal and professional life, proving to all that this man was, in fact, an extremely successful and smart person unlike any other. Compared to other intelligent people at that time and age, Zhang Cheng was an especially brilliant. The fact that things were much more difficult and challenging back then must be noted and kept in mind as well.

Born in the Xi'e, north of the modern Nanyang City in Henan Province, Zhang Cheng was lucky enough to be part of an important, distinguished and wealthy family. His father died when he was ten, leaving him in the care of his mother and grandmother. He was educated in the capital cities of Luoyang and Chang'an, then began his career as a minor civil servant in Nanyang. Eventually, after some hard work, he became the Chief Astronomer, Prefect of the Majors for Official Carriages, and the Palace Attendant in the imperial court. Most disappointingly, his political rivalry with palace eunuchs during the reign of Emperor Shun led him to retire from the central court to serve as an administrator in Hejian Kingdom.

I have introduced who I think is the greatest inventor and scientist of China is. We could agree, or agree to disagree, but no matter what anyone thinks, Zhang Cheng and his legacy will live on, along with his innovative device personally crafted by the genius himself.

The New Aircraft

St. Paul's Co-educational College Primary School, Poon, Lilianna Kirsten Rhodes – 12

Weak sunlight streamed in from an aircraft manufacturer's office window as he stared at the photos of Airbus and Boeing. Suddenly, he had a huge idea. If United States and France both had an extremely successful aircraft, shouldn't China try to compete with them too? He had to build an aircraft with his skills and technical knowledge he had acquired from his experience at work, and show the people that China was as advanced as the rest of the world. China had to reduce the reliance on foreign airliner makers and dependency on things they hadn't created.

After brainstorming how all this aircraft designing could work out in his own office, this manufacturer went to discuss this idea with the others. "I want to create an airplane as successful as Airbus and Boeing," he had told his company. "Someone will have to compete with the Western rivals in the air." Immediately, they approved of his proposal and started planning the timeline and steps for building the aircraft. They were to build the aircraft according to the specific needs of the Chinese market, and make it an international airliner that was unique in a way other planes would not be able to compete with. Of course, the most important purpose of designing this commercial passenger aircraft was to compete with the Airbus A320 and Boeing 737. Targeting a successful maiden flight in 2014, the company would fully support this idea and lead China to success with this aircraft.

Three years had passed swiftly. On 28 October 2010, they had applied to the Civil Aviation Authority of China for the type certification of their aircraft, and soon enough, the company had received 55 orders for the aircraft from different Chinese airlines. Then, the company had signed a cooperation agreement with Ryanair, the Irish low-cost airline, on the development of their new project. ICBC Leasing had also agreed to be the launch customer with an order of 45 aircrafts. It was time to start constructing the first prototype of their aircraft. It should be assembled in 2014 with a test flight in 2015.

Unfortunately, they were not able to do as they planned. Everything from the assembly of the aircraft and its maiden flight was delayed, and they only rolled out the completed aircraft in 2015, one year after their planned date. Finally, they had their maiden flight in 2017, and they expected a projected launch in 2020. However, they concluded that it might be more than likely that the launch would slip to 2021, given the recent delay in their assembly and maiden flight. They completed their second prototype of their project and soon, it was time for the second flight of the aircraft. It could fly for 2 hours and 46 minutes with a height of 10,000 feet, but others noted that the delay between the first and second flights, which took five months, was quite unusual. The company began to sweat over their project. Nothing was going as smoothly as planned, and the timeline had become even more delayed as they continued working on it. The third flight of the aircraft lasted 3 hours and 45 minutes to a height of 9800 feet, and the first prototype was transferred from Shanghai to Xian to continue its flight testing. Now it was time for the maiden flight of the second prototype, and it flew from Shanghai/Pudong to Dongying Airport in 1 hour and 46 minutes to take in a variation of meteorological conditions. Then, in the next year, the fourth, fifth and sixth prototypes eventually conducted their maiden flight. At last, the CAAC issued a type inspection authorization, which meant that the aircraft design was finalized and no more major structural changes could be made. The CAAC also issued the airworthiness certificate for their aircraft in 2022, and the company's hard work was over.

In 2022, their first aircraft was delivered to China Eastern Airlines, and the company revealed that four more of them would follow in 2023. In 2023, the aircraft had its first commercial flight, and the company had gathered to see it. "COMAC C919," the workers of the company chorused proudly in their deep voices, looking up at their aircraft. COMAC was the name of their company, which stands for The Commercial Aircraft Corporation of China, Ltd. The 'C' at the start was to create a contrast with the other airplanes, Airbus and Boeing, to compete with them with their project. The first '9' meant 'everlasting' while '19' meant that the maximum passenger capacity of the large passenger aircraft was 190 seats.

COMAC had worked hard for the glory and success of China, and the creation of COMAC C919 needed a lot of help from the workers of the company. They all struggled in the process of creating their aircraft, but in the end, they succeeded in having the first commercial flight of C919. Although the engines were from other countries, China has improved greatly after this long project, and is now successfully competing with the other airplanes.

China's Impact on Our World

St. Stephen's College Preparatory School, Chan, Josiah – 10

Our world is teetering on the edge of climate disaster, as rising temperatures scorch the earth, extreme weather patterns are decimating entire nations, and glaciers, ice-caps and sea ice crumble into the sea – and once verdant forests are now desert plains. Never before has our selfish actions pushed our planet to its limits, and never before has it been so urgent to act. How fortunate we are for China's cutting-edge initiatives that aim to develop and expand green energy to significantly reduce greenhouse gas emissions so that the world can reach COP28's core objective to keep 1.5°C within reach by the end of the century. More attention must be paid to China's extraordinary yet crucial innovations in renewable energies, affordable electric cars, and the pioneering tree-planting techniques.

It is clear that human activity is responsible for the climate crisis we find ourselves in, as throughout this century the Earth's temperature has risen by an average of 0.14° Fahrenheit (0.08° Celsius) per decade since 1880, or about 2° F in total. The rate of warming since 1981 is more than twice as fast: 0.32° F (0.18° C) per decade. Our world's COP28 has discussed this decade's energy efficiency and renewables deployment alongside a phase-down in fossil fuel supply and demand; a significant scaling of climate finance for both developed and developing countries. But thanks to China, they already planned and made [253 GW] more solar energy as well as building more accessible and non-polluting electric cars and turning deserts into forests, but there are still countries that are lacking in the resources to build these technologies. Surprisingly each country is responsible for creating around 37 billion metric tons (GT CO₂) of carbon dioxide emissions from coal and fossil fuels in a year. But especially Russia produces the most Natural Gases in the world as well as other countries generating more greenhouse gases to heat up the world.

The earth nowadays still depends heavily on fossil fuels, with oil, natural gas and coal accounting for over 85% of energy source. Alternative energy such as nuclear, hydro, solar, etc account for a meagre 15%. It's in everyone's interest that the use of fossil fuels must be greatly reduced. China, as a responsible nation globally, has set a national objective on carbon emissions, reaching the peak by 2030 and achieving carbon neutrality or "net zero" by 2060. For instance, China has increased its installed capacity of solar energy by nearly 100-fold from 2012 to 2022, from 4GW to 390GW and heading to 1,000 GW by 2026. Analysts expect that in order to meet Paris Agreement targets by 2030, a total of 11,000 GW capacity of renewable energy is needed.

Even though China is the world's largest coal user, China has been the world's largest and fastest-growing producer of renewable power for more than a decade and it is largely thanks to their prolific production of solar panels that they are thinking of how if we continue to do nothing, we won't be able to live on earth again.

Solar Power works by converting the sun's energy into power. There are two forms of energy generated from the sun for our use – electricity and heat. Both are absorbed by the PV cells in the panels and are generated through the use of solar panels, which range in size from residential rooftops to 'solar farms' stretching over acres of rural land.

China has made substantial progress in deploying solar panels on a massive scale, making it more affordable and accessible to the masses.

While some criticise that solar panels produce greenhouse gases in the process of making, maintaining and disposing of them, China has found a way to manufacture them in an environmentally-friendly manner.

In 1950 a scientist astonishingly discovered that transportation contributes to 10% of carbon emissions. With that discovery in mind in the 2000's China has been modifying cars by turning them electric instead of burning fossil fuels. With that discovery in mind in the 2000's China has been modifying cars by turning them electric instead of burning fossil fuels. Moreover, China has been dominating the race of electric cars throughout the century, at present

China is competing with Tesla. The annual output of electric cars produced by Chinese manufacturers is expected to be nearly 7 million units in 2023, more than double the annual output of Tesla. Such a brilliant outcome was not achieved by accident or luck. The Central Government of China has the resolve and commitment to make it happen by encouraging technology advancement in the electric car industries and providing appropriate incentives for both manufacturers and end consumers for early adoption of electric cars.

This will impact the world significantly as there are around 1.4 billion people driving cars and burning fossil fuels, thus leading to more carbon emissions. China has taken the initiative and made a promise to produce more products in our daily lives to use less oil or fossil fuel. Unlike other countries, China didn't break their promise and they even did it 5 years early!

China's biggest project comes down to reforestation. Their project:

After decades of afforestation, China has created the world's largest planted forests, with its forest coverage rate more than doubling from 12% in the early 1980s to 24% in 2022.

China's sustained afforestation efforts have contributed to addressing global climate change and promoting green and low-carbon development, thus creating greater development dividends for the world.

China's biggest project comes down to reforestation. Their project:

After decades of deforestation and the Gobi desert covering green lands by 1000 000 mile square, China has created the world's largest planted forests, with its forest coverage rate more than doubling from 12% in the early 1980s to 24% in 2022. China is hoping to build a great forest around the Gobi desert in the three northern regions: North, North East, North West in China

China's sustained afforestation efforts have contributed to addressing global climate change and promoting green and low-carbon development, thus creating greater development dividends for the world.

In conclusion, China has taken significant steps to address climate change and contribute to global efforts in mitigating its impact. As the world's largest emitter of greenhouse gases, China has recognized the urgency of the situation and implemented various measures to transition towards a more sustainable and low-carbon future.

The Future of Drones in China – The Flying Robots

St. Stephen's College Preparatory School, Yeung, Hiu Wing Karissa – 10

The future of drone technology looks bright in China, with remarkable technological innovations that will further enhance drones and their applications in society. As we know them now, drones will soon become a thing of the past. Instead, they will be equipped with intelligent devices incorporating various combinations of arms, legs, and wings. We will call them “Flying Robots”. They will come in a range of sizes, from miniature versions to huge and powerful ones. And they will become very popular around the world.

I went to China with my family a few months ago. There, I saw many elderly people in the parks and on trails. Like in many other countries, the ageing population is undoubtedly an issue. Doctors and nurses always have to visit the elderly to check up on them and do not always have time for that. “Flying Robots” can help solve this issue and address other time-sensitive cases by directly delivering medicines rather than medical personnel relying on traditional means of transport.

The future “Flying Robots” will be programmed to transport medical supplies and essentials to all locations, whether urban or rural, up in the mountains, down in the valleys, or even underwater. They can deliver medications to remote locations, dangerous places, and areas affected by war or contagious diseases. There will be no need for anyone to put their lives at risk. Healthcare will become accessible anytime and anywhere. Some of these “Flying Robots” will come with superb built-in screens and cameras. They can establish live connections with hospitals so doctors can see what is happening and keep track of the situation remotely. Medical practitioners can instantly assess the situation and do whatever is needed. The elderly or any sick people who need help will be able to see the warm and smiling faces of the medical personnel, which is a kind of healing. On top of this, Artificial Intelligence Programmes can also be included to make it even better!

Further to the above, China invented the 5G communication technology, and 6G is already in the pipeline. These technologies offer zero delays in transmitting signals, far quicker than making instant noodles. Given this, I think it would be possible for the “Flying Robots” to render First Aid Treatment.

The potential of “Flying Robots” in China is undoubtedly massive. China is a vast industrial and farming country and would benefit greatly from this invention. They will allow farmers to monitor crop and livestock conditions from the air to keep watch for potential problems and help optimise agricultural management. The digitalised, highly effective, and precise field monitoring these robots offer will help spray pesticides and fertilisers quickly over huge areas. The improved operation efficiency may gain explosive yields, too. My father explained to me that the Chinese government has always sourced agricultural products from around the world to meet the needs of its billion citizens. Perhaps we can grow the pie even bigger with these “Flying Robots”. Before long, we could even ship out our livestock and wheat to anyone and anywhere suffering from poverty.

“Flying Robots” could change the business landscape in the industrial sector. Special cargo robots will be designed to carry heavy goods, revolutionising transportation operations. Moreover, these robots will play a crucial role in rescue missions. For instance, when mountaineers or divers get stuck in mountains or underwater, these robots can bring necessities, medicine and rescue beds to save them. They can even have a joyride to the hospital or go home directly.

In the entertainment world, “Flying Robots” will be able to record an entire gig instead of relying on a big crew of cameramen moving amongst the artists on stage. Then my parents, and anyone else for that matter, can easily record videos of performances merely with their fingertips. There may also be some programmed dancers; they can fly, jump and give laser beam shows. Most importantly, some of them can deliver drinks, potato chips and nuggets.

China has produced many super inventions, but I am confident that “Flying Robots” could be the biggest success ever emerging from China. They could surely become the most loyal friends or partners of human beings.

One of the Greatest Chinese Inventions

St. Stephen's College Preparatory School, Cheung, Yin Ronnie Chun – 12

When you think of China's inventions, one of the first things that comes to mind is paper. It is something that we use subconsciously in our everyday lives and is a crucial part of it, so I think it's important that we know of its origins and how it has affected our daily lives over the past nineteen centuries.

Although paper has existed since the 3rd century BCE, the first modern piece of paper was invented by Cai Lun, who was a Chinese eunuch court official of the Eastern Han Dynasty. He played a crucial role in the history of paper due to his addition of pulp using tree bark and hemp which is a versatile plant with fibers and seeds. He made paper with the inner bark of bamboo, mulberry trees, cloths, and nets. He used the mixture and combined it with water, and when the mixture started to soften he poured it onto a piece of stitched cloth. After that, he removed the water, and dried the mixture until it was a thin matted sheet. Given there were no machines at the time, this was extremely impressive and revolutionized the papermaking process forever. Unfortunately, Cai Lun took his own life as there were false rumors that said he was intending to harm the emperor of the Han Dynasty.

Now that we have talked about how paper was invented, let's see how paper has changed our daily lives. Around the late 16th centuries, paper was used for toilet paper and is crucial for our day to day hygiene. Tea, which is the second most consumed beverage in the world, is commonly made with tea bags, which, you guessed it, are made of paper. How about banknotes? Bank notes, were introduced during the Song Dynasty and is something we can't live without today. And lastly, origami, which is the art of paper folding. It was introduced in Japan in the 6th century and is a hobby for many people around the world today. These are just a few out of hundreds of uses for paper, there are so many more that I can't even list out, and even if I were to, it would probably take me a few weeks!

In my opinion, paper is single handedly the most influential invention not just of China, but of all time. I can't even imagine a world without paper and I don't think it would be liveable. I think we should be grateful that we are able to have paper in our daily lives and to cherish it as some people in the world don't have the luxury of it.

New Tales of China's Inventions

St. Stephen's College Preparatory School, Cho, Tsz Long Tristan – 10

China has been one of the greatest inventors in the world to create significant inventions which have a profound impact on people's lives. Influencing areas include medicine, science, technology, society and more. In the past, China had four famous inventions: Papermaking, printing, compass, and gunpowder. Recently, there have been important advancements in high-speed rail technology and E-commerce platforms such as Alibaba and Taobao. All these inventions represent the great revolution and improvement in our lives. Not only do these inventions make remarkable contributions to China, but they also exert a global influence on people worldwide.

China has a rich history of innovation and one of its most fascinating inventions is gunpowder. It has an interesting story on its path of discovery. While it was controversial to define who was the first to find the formula of gunpowder, it was believed to be discovered accidentally by Taoist alchemists during their quest for a life-extending elixir in the Tang Dynasty. Through the persistent practices and experiments, alchemists found out that there would be an explosion when saltpetre, sulphur, and charcoal were mixed together. The pharmacologist and alchemist Sun Simiao in the Tang Dynasty recorded these important ingredients and usages of gunpowder in his written work "Dan Jing Nei Fu Liu Huang Fa" (Method of Embedded Sulphur in the Alchemy). This is regarded as the earliest known formula for gunpowder in Chinese literature.

The Chinese gradually summarized their experience in the use of firearms, which led to the compilation "Wujing Zongyao", a comprehensive military publication written around 1040 to 1044 in the Northern Song Dynasty by Zeng Gongliang, Ding Du and Yang Weide. It is the first official military techniques book in China that describes the use of gunpowder weapons. It meticulously records the manufacturing and usage of firearms at that time, promoting the development of firearms in later generations and even serving as a manual for ancient Chinese. Subsequently, during the Song and Yuan Dynasties, gunpowder was found widespread in military applications, leading to the emergence of various gunpowder-based weapons like cannons, rockets, and fire lances.

The invention of gunpowder had a revolutionary impact on military technology and warfare, not only within China but also on a global scale. Its explosive properties brought about important changes in military tactics and weaponry in the world. For instance, the introduction of firearms in Japan during the Warring States Period (Sengoku Period), which lasted from the late 15th century to the early 17th century, brought a significant shift in warfare from Bow and Arrow to matchlock guns. Matchlock guns, known as Teppo, were introduced by Portuguese traders in the 16th century. These early firearms utilized a matchlock mechanism to ignite gunpowder and propel projectiles. The Teppo allowed for more powerful and long-range attacks compared to traditional weapons like bows and swords. The battle of Nagashino in 1575 was a famous one which marked the success of firearms. Oda Nobunaga used the three-stage shooting tactic to create chaos to the enemies. It was believed that over 70 percent of the Takeda clan's samurai were killed by the matchlock guns.

Apart from the application of gunpowder in the military sphere, it extended to the development of firecrackers and fireworks, adding to the cultural and festive traditions of various societies. For example, setting off firecrackers was believed to be able to keep villagers safe from the beast "Nian" in ancient China. This custom spread to every corner of China and developed into one of the most important customs during the Lunar New Year. There is a well-known saying "With the sound of firecrackers, the old year is swept away". Firecrackers have long been a symbol of driving away evil spirits and bad luck. The loud noise they produce is believed to scare away negative energy and clear the path for a new start. Fireworks in China also play a significant role in celebrations such as Lunar New Year and National Day. These colorful and explosive displays have become integral parts of festivals, symbolizing joy and good fortune.

The application of fireworks (Hanabi) in Japan is another good example. Fireworks first became popular during the Edo period. It was a symbol of spiritual beauty. Fireworks have been historically used to ward off evil spirits and have become celebrations in summer festivals, musical events, and the New Year. Large-scale Hanabi Festivals take place

during the summer holidays in July and August every year. They are regarded as huge events and traditions in Japan. These firework shows attract many spectators from local people to overseas tourists to watch.

Overall, the invention of gunpowder from ancient China showcases its enduring importance in shaping human history. From its accidental discovery by alchemists to its widespread military applications, gunpowder revolutionized warfare and led to the development of powerful weapons. The impact of gunpowder extended beyond the military realm, as it also influenced cultural traditions with the creation of firecrackers and fireworks, symbolizing joy and adding colour to festive celebrations. The invention of gunpowder remains a proof to China's great contributions to technology and its lasting global influence.

New Tales of China's Inventions

St. Stephen's College Preparatory School, Hui, Hailey Doria – 10

Many things we use today were invented in ancient China by Chinese inventors of the past. Many inventions have evolved into better and more convenient tools.

Ancient China's four great inventions changed the world. It is important to recognize that these inventions were crucial. Without them, we would not have paper to write on, compasses to determine direction, gunpowder for signalling, or the ability to print words.

Perhaps more new inventions will appear in the future to help us solve everyday problems. Let's see how the Chinese inventors of the past can inspire me to predict some more magical inventions.

The inventors of the four great inventions are as follows: Cai Lun, who discovered a way to make lightweight and inexpensive paper by observing paper wasps building their nests; Shen Kuo, who invented the compass by researching magnetic declination towards the North Pole; the Chinese Taoist alchemists who discovered the key ingredient, saltpeter, for making gunpowder; and Bi Sheng, who invented movable type printing. Bi Sheng was inspired by his experience making various objects out of mud, such as tables, chairs, benches, and pots and pans. After moulding and baking them, he realized they could be arranged as needed, which gave him the idea for movable type printing.

Now, I have thought of some future inventions or gadgets that may help people. For instance, imagine a portable invention called the Mini Aircold. It could be useful for people on scorching hot days when they are outdoors and need a portable mini air conditioner to stay cool. Another incredible invention could be a self-drawing tool that sketches images directly from your brain to the paper. By connecting a wire from your brain to the pencil, whenever you think of an image, the pencil would automatically draw it.

These are just examples, but in the future, inventions could become even more astonishing and creative. I hope that China can invent more convenient tools to assist humans and other creatures. Lastly, I would like to express my gratitude to the people who invented the four great inventions. The world would not be the same without them. Keep innovating!

Spooky Action at a Distance

St. Stephen's College Preparatory School, Leong, Lek Pong, Lucas – 12

Have you ever heard about Quantum Mechanics? Quantum Mechanics or Quantum Physics is a fundamental theory in modern physics that describes the behavior of nature at the scale of atoms and subatomic particles. Quantum Mechanics was invented in 1925 by a few German physicists such as: Werner Heisenberg, Max Plank and Erwin Schrodinger. When Einstein was introduced this new theory of physics, he was really surprised and couldn't really process the theory of quantum mechanics. There is a fascinating finding no matter how far apart they are in space. This explains how mysterious Quantum Mechanics really is. When Einstein first heard about this theory, he describes it as 'spooky action at a distance'.

Nowadays, Quantum Mechanics is getting more and more advanced. As China has proved to the world that China's Quantum Technology is indeed the leader of the world. This dates a few years back to 2016, when China had launched the first quantum satellite named Micius. Micius uses the theory of Quantum Entanglement that creates a line of communications where the ground stations are 1200km apart. It also uses the technology of Entanglement-based quantum key distribution which is so called 'hack-proof'. It lets you communicate at vast distances without any interruptions by evil hackers. Once interruption is detected, both stations will be noticed. This technology uses the theory of Quantum Entanglement which can lead to a much safer network.

Few years after the invention of the Micius quantum satellite, China has improved the Quantum key distribution (QKD) technology once more! They have now set a milestone of 4600km of two ground stations apart. They are willing to create a quantum secure network in the future. The entire network covers 32 nodes in four provinces and three cities in China, including 4 quantum metropolitan area networks in Beijing, Jinan, Hefei and Shanghai. It is currently connected to finance, electricity and more than 150 users in the government affairs and other industries. This is a huge milestone in China's Quantum communication network which is in lead of the world.

I hope that China's Quantum technology will keep improving and make quantum communication a real thing. As quantum technology is improving, this can also decrease the risk of users being hacked or intercepted. This also helps with instant communication without delay at vast distances. Let's watch the China's invention soar!

The Super App

St. Stephen's College Preparatory School, Pang, Alexis – 10

China has recently been considered a leader in science and technology. It is well known for its four famous inventions: gunpowder, which has unfortunately been very effective in warfare, but is also very useful in civil engineering projects; the compass, which made navigation far easier and safer, and brought about the discovery of a new world; and paper making and printing, making the mass propagation of knowledge possible. But unfortunately, due to its emphasis on humanistic studies, China has neglected and even discouraged innovation and studies in science. China hasn't had any new inventions for a long time—until recently.

WeChat began as a project at Tencent Guangzhou Research in October 2010 and was launched in 2011. The original version of the app was created by Allen Zhang. It started out as a simple communication app and evolved to become a super app. It is so successful and admired that it is considered as one of four new great Chinese inventions: super apps, high-speed rail, online shopping and bike-ride sharing. Super apps are apps that contain numerous functions, some beyond even your imagination. They are very useful in daily life because you can do anything in just one app.

On WeChat you can broadcast live, scan a product, chat with others around the world, search, play games and participate in mini programs. But amazingly, it also provides a whole range of services which are almost beyond expectation. For financial management, it includes receiving payments, making payments for credit cards and wealth management. For domestic services it can help you manage your phone bills, make payments for living expenses, invest and manage your crypto currency, arrange your charity payments or donations and schedule medical health services, like booking medical appointments and taking out health insurance.

WeChat also includes transportation services, online shopping, house hunting and most importantly, city services. City services can help you with social security, provident funds, payment for traffic violations, making contact with public security offices, traveling, conveniences provided by cities, civil administration and even paying your taxes.

WeChat is also connected with a music app named JOOX. JOOX is also owned by Tencent, launched in January 2015. It is the biggest music streaming app in Asian markets, as well as in South Africa. JOOX has a free and a premium service.

Super apps contain almost anything you need in your daily life. They help make everything more convenient; it is really hard to think of something in your daily life that a super app can't satisfy. Super apps are just what you need to make your social life, financial management, obtaining civil services, traveling and almost any aspect of your daily life within the reach of your fingertips.

Some people may argue that a super app is not an “invention”. It is true that other apps with particular functions already existed. For example, people used Facebook for social communication, PayPal for making payments, WhatsApp for instant messaging, etc. But according to the Cambridge Dictionary, invention is defined to mean “something that has never been made before, or the process of creating something that has never been made before.” I would argue that a super app like WeChat qualifies as an invention by falling within the second limb of Cambridge's definition. Admittedly, most of the functions have been available via other apps for quite some time, but it remains for China to come up with a super app.

The mass usage of Chinese supper apps has left many software companies in the west trailing and attempting to create their own counterpart. As Elon Musk once said, “There's no WeChat equivalent outside of China”, and he plans to use his various platforms such as X to create a super app—“there's a real opportunity to create that”, but that is yet to be done.

New Inventions of China

St. Stephen's College Preparatory School, Tam, Yi Sum Yzabela – 10

I've seen a lot of inventions from mainland China in history, like tea and gunpowder from a very long time ago, and WeChat and TaoBao from more recent years. But there still bears a question: Now that we've got awesome things from the past and the present years, what about the future? I have gathered some ideas that I think would be amazing if they were spun into reality from my thin threads of imagination.

I always thought that having a small personal Siri that you could use at any time would be very popular. Though we already have Siri in our phones, you would still have to say "Hey, Siri" or just "Siri". And no matter how many times you try, sometimes Siri just doesn't understand what you're saying. They would either call someone by accident, or interpret your voice input wrongly, which is annoying, and I'm sure that you would understand. I hope for a better, more evolved and more precise Siri, and it would be called MeiHua. Her form could be customisable, as an accessory like a bracelet, or a watch. All you would have to do is to press and hold MeiHua and ask. You could even call someone with this device at any time, any place, and anywhere possible! I just hope that it could be real one day. For now, I'll just continue spinning my fine threads of imagination.

A Flying Car

St. Stephen's Girls' Primary School, Tse, Chi Shuen Sheryl – 12

I have decided to write about a car invention that every child has dreamed of having-----a flying car.

I believe that it could be possible, however, there are many things preventing this concept from happening. For example, there might be traffic accidents in the sky. Helicopters, planes, or even more flying cars will be a headache for the government to control.

In addition to the problem, inventors will have to think of the air pressure and issue a driver license for the car. Although these might be big problems, there are always solutions to solve them.

The inventors can make the structure like a car but with engines powered by sun panels. The car's windows should be in an oval shape to prevent the air pressure from shattering them.

As for the traffic, I believe that the airplanes will fly above the clouds, the helicopters in their normal height, and the flying cars above the normal cars. Traffic shouldn't be a problem if the sky road is only for the rich and wealthy. As the flying cars have an expensive cost, only rich families will be able to afford it. I think that the flying cars will be just like the phones in the olden days when only rich people can afford it. Nowadays, even people working in factories have phones.

I am sure that this will be eventually invented and designed in the near future.

Robots for Company

St. Stephen's College Preparatory School, Wong, Rose – 10

I was visiting the elderly as community service at school with my classmates. As we stepped into the care home, I could feel a sense of loneliness and grief in the atmosphere. There were a few old ladies sitting on chairs, their eyes empty with boredom. The place was a mess: ripped newspaper covered the floor and a pool of soup landed on the sofa. "What a mess!" my friends exclaimed. The surroundings seemed barely habitable. We decided to clean the room. The place wasn't well ventilated and pungent smells came out from every corner. The kitchen was damp, and mould grew on the walls. After cleaning, I couldn't help but to ask, "Does anyone come and help you?", and I got a shocking response. The facilities provided to them were limited: only cooked meals would be provided three times a day, nobody would come out and help them. I also learned that most of the elderly there were disabled. Their families could not afford a helper and mostly worked overseas.

Since nobody would take care of them, I thought of an idea to improve the situation. The Hong Kong government could lend a hand by producing robot helpers to support the elderly. The robots can complete household chores and provide all kinds of entertainment for the elderly. They can also monitor physical health and dispense medication as required. They can bring joy to the old people and decrease the stress placed on their families. The robots can also be a form of communication. Once a week, they could give a relative of the elderly person a video call to assure them that they are healthy and safe. However, this does not mean that families can leave the elderly alone with helper robots. Life with such robots would not be perfect. The robots cannot show the affection and love that life with a caring family provides, but visits from families could show the elderly person that they are not alone and bring them joy. While using the helper robots, it is also suggested that relatives visit whenever possible. A life away from their families could make them feel distant and ignored.

Helper robots can also be used for other purposes, such as taking care of people with disabilities or as babysitters. They can also reduce the need for helpers, which are usually unaffordable for many citizens under the poverty line. The use of helper robots can help societies to manage the burden of an ageing population by providing care for people in society who are dependent on others, such as the elderly and people with disabilities. This could be an opportunity to help us improve our daily lives and take away the worry of our ageing population.

However, helper robots should not be used for self-benefitting purposes. The activity of the robots should be monitored by the government. If a helper robot is misused, it could be taken away by the government and deactivated. The cost of the robots could be supplemented by charity funds and mandatory taxes from those who are wealthy. The robots would only be provided to elderly people over the age of sixty-five, children under eighteen and citizens with disabilities with a doctor's note. Whenever a person who fulfils the requirements of having a robot is in need of assistance, they could call a charity and a helper robot would be delivered to their door automatically. The robot could be charged by sunlight and a person can refill its battery by taking a walk outdoors. It also has a seat equipped with safety features that can act as a wheelchair for those who have trouble with walking. After launching these robots, we can also produce a batch for other countries to help them solve the world's ageing issues. The robots can be sold out to other parts of the world, and the money can be used for further improvement on the robots. As a non-profitable government fund, the robots can help us create a better society.

As the needy suffer from living in uncomfortable circumstances, it is most necessary for helper robots to be provided.

Paper Money

Stanford American School Hong Kong, Fk Kumar, Ishaan – 9

Money is something everyone wants. Have you wondered where the concept of paper money came from? In this article, I will teach you everything you need to know about the origin of the first paper money. Definitely there cannot be a banknote without paper, so it seems quite intuitive that paper money first appeared in China, which was the country not just the inventor of paper but was also the first to develop printing.

China used different kinds of objects as money. The Chinese used spade coins in the central area of the Middle Kingdom but in the north of China, they used cowry shells. Cowry shells are known as gifts. At that point of time the emperor got the most cowry shells, these shells were also used to make jewellery, like necklaces. So when central China created spades as their currency, they thought it was too big and heavy that they invented a bronze cowry. While central China was using this new currency, northern China made another currency, the knife coin. Knife coins were in the shape of a knife but edge less not compared to that of a normal knife. It is more rounded. The northern lowlands area wasn't the common residential place and was mostly inhabited by nomads and hunters. The hunters used standard knives to hunt animals. So in the form of a hunter's knife they made a mini knife coin which then had found its way to Mongolia and Korea.

Money is used to trade goods and services. People before paper money used their own items to barter for things they needed, many families at that point of time traded cowry. The last milestone was the era of coins used as currency. Around 650 to 600 B.C, copper and metal coins became the currency to pay with. Coins were made of metal like bronze and copper. Later, coins of silver and gold were also used. This was important because coins were by count, not by weight. Thus, serving as the first currency. The first metal coin was dated back to 1000 B.C in China. For centuries, the bronze and copper coins were widely used for trading. These coins were circular and had a small hole in the middle for stringing. As a single coin was not of much value, traders would form a string of 1000 coins typically. When customers purchased goods, they paid in terms of string. If they wanted to buy objects in bulk, a lot of strings of coins were needed. Carrying many coins was difficult because of their weight. So, merchants came up with the idea of promissory notes.

Promissory notes were made in China in 700 to 800 A.D and were created to make it easier to carry. To make sure nothing bad would happen such as printing paper money illegally, the merchants who gave them iron/copper coins, the shopkeepers gave them a bank note of how much silver/copper coins they gave them with hard textures to copy so it's not easy to replicate the note. Then the Qing Dynasty opened shops like banks but in the size of a shop. This was where they exchanged coins for the banknotes, like in our world we have credit cards instead of coins to get paper money from the automatic teller machine (A.T.M.). The Qing Dynasty made China one of the most commercialized countries in the world. After the conquest of Mongolia they opened routes to Russia and interior parts of Asia. And with this came the rise of the Qing dynasty empire. The paper money was printed in factories with woodblocks and used six different colours of ink. Different factories used different fibres to mix in their paper so that it was difficult to copy. It was believed that a paper money factory at Hangzhou employed more than 1000 workers. They also invented methods to detect forgeries/counterfeit notes like imprinting secret marks on the note, and delivering strict punishments to forgers.

Then, Marco Polo came to China to study paper money. In his book, "*Travels of Marco Polo*", the voyager wrote about early banknotes in China and how they were created from the bark of trees. This inspired Europeans with the idea of paper money and they started creating their own version of the same. Paper money only started

catching on in Europe in the 17th century which was almost 500 years after its use in China. Interestingly in 1455, the Chinese discontinued the use of paper money and did not use them again for many centuries. This was because paper notes led to very high inflation as too much of them were issued irresponsibly.

These are some of the reasons why paper money is better than coins. It was easier to store and organize paper money in a vault than coins as it required less space in comparison than metal coins. Paper money is lighter, hence easier, to carry than metal coins. So it makes it easier to travel with than metal coins. It was hard to counterfeit paper money as they put complicated textures on it. Paper money was easier to count. It would be easier to count notes in a purse comparing to the coins in your piggy bank! Knowing the worth of coins could be difficult if they weigh or size differently. Paper money has clearly marked denomination so it is easier to understand the value.

It's harder to print because you have to put textures so it doesn't get counterfeited. Factories needed to be set up to print paper money and to safely be guarded as well. Paper money can get damaged with water or rain but coins are made of metal so they are more sturdy. There are still limits to how much money you can carry without becoming an easy target for thieves.

Money has kept evolving with time, it moved from coins to paper money. With advances in technologies, the digital world transactions are becoming paperless with people using credit cards or other digital payment methods. Happy spending!

Gunpowder

Stanford American School Hong Kong, Yau, Siu Leung Edward – 10

Introduction

In the 9th century CE, the Chinese monks discovered gunpowder technology, for life-extending elixir. Gunpowder, used as propelling charges and mining. It was found incendiary and was immediately applied to warfare. It is documented that the technology has reached the Middle East in the 13th Century CE. Read on to discover about gunpowder's disadvantages and advantages, empires and the plot!

Gunpowder Abilities, Basic Information and Advantages vs. Disadvantages

Gunpowder is a mixture of saltpetre, sulphur and charcoal. The key ingredient is saltpetre, which is also the most expensive ingredient. It was found to be incendiary and was immediately applied to warfare. Today, gunpowder is used for fireworks, fire arrows, firework – making apparatus, weaponry, certain types of ammunition and many other industries. Industries to produce fertilizers, dyes and pigments. Moreover, it is also used for mining and processes such as cement production and iron smelting.

Sometimes, it is also used to make incendiaries which are fireworks that contain a burning fuel which is usually charcoal. Sometimes, gunpowder is used to make loud noises. Gunpowder is surprisingly also can be used as a medicine! Plus also as a painkiller. It is known how to treat burns and other injuries. Gunpowder can also detonate explosives and fire projectiles. It can produce a colorful smoke and some smoke machines can produce bubbles. Some advantages of gunpowder are easier to be lit using a fuse rather than an igniter. It also can be sorted into small packages. Third, it can be easy to store, light and economical. Fourth, it has the ability to clean fireplaces and make papers or cardboards. This material is environmentally friendly, so it doesn't end up in landfills. It stops leaks plus keeps all the insects out of the way. On the other hand, there are going to be some disadvantages. Smokes from gunpowder can make you unhealthy. For the manufacturing, it takes lots and large amounts of energy to make it. It is extremely dangerous to work with it and one false move can cause explosions. However, gunpowder has not been used for weaponry since the late 19th Century.

The Gunpowder Plot: Bonfire Night

During the opening of the parliament of King James I, there was a failed attempt to assassinate him. Robert Catesby, a devout English Catholic who was the one who organized to kill him. Plus, also to establish Catholic rule in England. Part of his plan, Catesby was to kidnap James's nine year old daughter Princess Elizabeth, and install her as a puppet queen. The Gunpowder plot was foiled in the early hours of 5th November, 1605. On 20th May 1604, Catesby and the group of conspirators first met. Firstly, they planned to dig a tunnel beneath the Houses of Parliament. In 1605, they rent a cellar that was directly below the House of Lords. Dozens of barrels of gunpowder were moved in by Guy Fawkes, one of his conspirators, who was an explosives expert. He was the one to prepare to ignite the cache during the Opening of Parliament. Some other people were also involved in the gunpowder plot. 11 other men joined. Their names were Thomas Wintour, Jack Wright, Thomas Percy, Robert Keyes, Robert Wintour, John Grant, Kit Wright, Thomas Bates, Ambrose Rookwood, Francis Tresham and Sir Everard Digby. However, on 26th October, 1605, Catholic peer Lord Monteagle, Francis Tresham's brother-in-law, was handed an anonymous letter by a servant. The letter was delivered by a stranger on the road, warning Monteagle not to go to the Opening of Parliament. This was why the gunpowder plot failed.

Empire Events

The Gunpowder Empires are the three dominant Muslim empires that encompassed Eurasia during the late 18th and 19th centuries. These empires were the Ottoman Empire, the Safavid Empire and the Mughal Empire. The Ottoman Empire was actually involved in World War I! The Ottoman Empire started and rose from the Anatolia region in Turkey during the 13th century. It then became one of the most powerful empires for nearly 600 years. The leader was Osman I, who founded the Ottoman Empire in 1299. Osman only lived from 1258 to 1324. They fought against the Christian Byzantine Empire, failing them. The Ottoman Empire's soldiers were called Islamic soldiers known as Ghazis. They started to conquer the Christian – ruled strongholds in Turkey and the Ottoman Empire spreaders. In 1453, the Ottoman Empire conquered the former capital of the Byzantine Empire. However, the Ottoman Empire was starting to drop in the late 1600s. By 1914, the Ottoman Empire was diminished significantly. The Ottomans lasted until the end of World War I (1918). Now, to the Safavid Empire, it took control of Persia by about 1511. This empire learnt about the value of firearms and artillery early, from the neighbouring Ottomans. After the battle of Chaldiran, Shah Ismail built a corps of musketeers. In 1598, the Safavid Empire had a corps of cannons as well. They defeated the Uzbeks in 1528 using Janissary – like tactics against the Uzbeks. On the other hand, the Safavids had a disadvantage to the Ottomans. The Safavid Empire lasted until 1736. Our last one would be the Mughal Empire. It was also known as India's Mughal Empire. Babur, who was the founder of the empire, was able to conquer Ibrahim Lodi of the last Delhi Sultanate in the First Battle of Panipat in 1526. He coached the military with the Ottoman's techniques. Babur's victorious Mughal Empire used a combination of traditional horse cavalry tactics, and new-fangled cannons. It spooked Lodi's war elephants. Then, they ran away. There was another victory for the Mughal Empire. However, the Mughal Empire only lasted until 1857. The Ottoman Empire lasted the longest, followed by the Mughal Empire and the Safavid empire.

Conclusion

As you can see, Chinese monks discovered gunpowder technology in the 9th Century CE. It was immediately applied to warfare. However, it was not used until the late 19th Century. I had three body paragraphs in total. Gunpowder abilities have advantages and disadvantages, the plot and the empires. Gunpowder can be used with lots of things instead of guns. It can also detonate explosives. The empires that used gunpowder had lasted for a long time. The Ottomans lasted the most. The Gunpowder plot was very exciting when Robert Catesby wanted to assassinate King James I.

The Inventions of the Chinese

The French International School, TKO, Cui, Elva – 9

Introduction

The Chinese have invented lots of things that changed our lives. As far as we know they're still trying to create more inventions. They are also improving the old inventions. So in today's article we will be learning about Chinese inventions and inventors.

Gunpowder

Gunpowder was invented by the Chinese in the late Song Dynasty. It's made when the Chinese Taoist was trying to make a potion for immortality. It was the first explosive. It was made from charcoal, elemental sulfur, saltpeter mixed together. At first it was used to make fireworks for festivals and important events. In the 9th century CE, people started to use gunpowder for war. Fire lances were the first guns ever used in the Chinese military. The gunpowder was very destructive.

The Printer

The printer was invented in around year 100. It's made because the Buddhist needs a quicker way to make more copies of the scrolls and the imperial. The first type of printer is called a wood block printer. It was made of wood, firstly the wood is shaped into a small cuboid, then 1 or more words are carved out on the surface of the blocks. Finally the block is dipped in ink and stamped on the paper.

After, the invention of the printer it dramatically changed the price of books since using the printer was quicker than writing them by hand.

Paper

Paper is invented by Cai Lun in the Han dynasty. Paper used to be bamboos sewn together. They were very heavy. One day when Cai Lun was having fun with his friends, he put his hands into the pond in the back yard. Suddenly, he felt a soft fabric in the water, he told his friend that he was going to make a new type of paper. Cai Lun used the soft fabric to make paper and that was the first paper to be made. Cai Lun's paper was made of mulberry berries, fishing nets and wood.

The compass

The compass is also invented in the Han dynasty by Shen Kuo. It was originally used to worship the Buddha, fortune telling and geomancy. It was later used for terrestrial navigations. The compass was used to be made of a metal spoon that always point towards the south. Later the metal spoon was replaced by a pointy blade to increase accuracy. The early compass was made from lodestone.

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Silk

Silk was invented by princess Xi Ling Shi 5,000 years ago. She discovered that cocoons can unravel into soft thread. She used the thread to make a blanket and it felt so soft and comfortable. That she decided to teach others how she

did it. The cocoon is spun by a silk worm .Only wealthy people can afford silk clothes .After Silk was discovered by people in other countries,the Silk Road appeared to trade silk for things in other countries such as spice in India or carpets from Egypt .

Chinese inventors

There are so many Chinese inventors of the past , Here are a few examples .

1;Cai Lun;Cai Lun was a great inventor he was born in the Han dynasty he invented paper .

2;Zhang Heng was an astronomer .He discovered that the moon cannot glow, it's light comes from the reflection of the sun light..

3;Ma Jun DengHeng invented the south pointing chariot.It was used to alert soldiers of incoming enemy .

Legendary inventor;Cang jie was said to be the creator of Chinese characters. His job was to remember the important events for the Yellow Emperor.

Conclusion

The Ancient Chinese inventions contributed a lot to this world, paper decreased the price of books , the inventions of the printers speeds up the process of making books. Although paper is enough for many people we still should save and recycle paper for a better in environment.

Inventions of the Near Future and Now

The French International School, TKO, Gui, Austin – 10

I have been seeing quite a while that the world is suffering from problems such as overfishing, pollution, climate change, overpopulation, overhunting e.t.c., so when i had time, i would brainstorm some ideas such as planting more to regain trees lost to deforestation, feed fish food containing chemicals that makes fish more active to breed, launch space houses into space and even make a machine that can recreate living, healthy things. Since gunpowder and paper was invented, things has been going romping fast, but after many modern such as the nuclear reactor, things has started to slow down a bit. Even if technology was slowed for the time being, you could still think about the future, for example planes that could go faster than light? cyborgs? AI that could think and have real life difficulties, they were all achievable.

I think that one of the most useful prototype transportation vehicles is a multi-terrain car, they can go on sky, water and land, but it is very pricey, I hope that will change. I also hope that one of the future transportation vehicles will be the magnet car, instead of wheels, it has magnets, the magnets will act as an anchor to the ground, the fuel will be electric so that it is eco friendly it has no friction to limit its speed so it can go as fast as a bullet train (estimate). Another amazing idea is printed food (edible) that would easily solve world hunger but many countries would not be happy for the food price deflation. This invention will boggle your mind! Energy storing bricks is another cool thing humanity made, it is made by coating smart bricks in a reactive polymer, then you charge it with a solar panel (all sizes though smaller solar panels take longer to charge the brick), you can glue/tape a wire (or any kind of metal, copper, zinc, metal e.t.c.) on the brick, then the light source will automatically light up, yes it does work on phones too.

These inventions below save energy and resources:

1. Sweat powered smart watches

Engineers have found out that smartwatches can be powered by sweat, the smartwatch is made from a special kind of cloth, it can absorb chemicals inside sweat, it will then convert the chemicals into energy.

2. Self-healing living concrete

Scientists have created concrete made out of bacteria, chemicals, sodium and more, it is also a lot more eco friendlier than regular concrete.

3. Teleportation or highly advanced transportation system

In the near future I believe that advanced transportation technology will be developed, such as light speed flying spaceships, teleportation, drone transportation and much more.

Thank you for looking through Inventions of the world, see you next time!

The Invention of Gunpowder

The French International School, TKO, Nguyen Huu, Kiana – 10

Do you know any facts about gunpowder? What was it invented for? Who created this dangerous substance? Well, you're going to find out some interesting facts in this article.

It is believed that gunpowder was invented during the 9th century by monks in the Tang Dynasty. Gunpowder is one of the 'Four Great Inventions'.

Gunpowder was initially invented because monks tried to find an immortality elixir. By doing this, they created the most destructible tool in history. Once it was produced, it was first used for medicinal purposes. Then, later, it was stumbled upon that gunpowder would work terrifically for fireworks. During the Song Dynasty the Mongols tried to invade China. The Chinese military forces used gunpowder devices to defend themselves against the Mongols.

Throughout the late – eleventh century, the Song Dynasty's government became concerned about their gunpowder secret leaking out. Throughout time, gunpowder became popular for crusaders and traders.

Gunpowder had to be measured very, very precisely or too little amounts could result in the device using the gunpowder not working. But too large amounts could cause bigger explosions, therefore could cause serious, maybe fatal injuries.

After that came the influenced development of every military force in Eurasia throughout the middle ages and beyond. But in truth, the Chinese actually didn't want to spread their gunpowder secret.

In the end, many may debate whether gunpowder is good or bad but both sides have their reasons. Gunpowder is extremely dangerous but it allows you to marvel your eyes at fireworks. Leaving the topic debated whether the invention of gunpowder is good or bad, few agree they are both.

Whether it is a gun held by a military soldier or pretty, multicoloured fireworks, we can all agree that gunpowder is important to the whole world. If there weren't any gunpowder, there would be no fireworks and military forces might not be able to fight in wars due to the lack of better weapons.

Past inventors in China

The French International School, TKO, Oh, Yuna – 8

China is an ancient and big country with a large population and a long history that spans over 5,000 years. Throughout its long history, many brilliant people in China have created amazing inventions that have had a big impact on the world. Let's take a fascinating journey and learn about some of these clever inventors and the fantastic things they invented!

ZHANG HENG

Zhang Heng was a remarkable person born in China in the year 78 AD. During the Eastern Han Dynasty he already invented the world's first device to measure the time and location of earthquakes. It was very important to help people know when the ground shook. He also developed a special cart that measured distances, somewhat similar to our modern-day odometers in cars. Additionally, he was incredibly good at studying the stars and planets. One of his most incredible inventions was a special water-powered sphere that he made in 117 AD. This amazing sphere helped people understand more about the sky and how it works.

And he also authored a really exciting book called "Return to the Field."

CAI LUN

Cai Lun lived in China from the years 50 to 121 AD. He made something super important to people or us – paper! He was the first person to invent paper and innovate the modern paper-making process in 105 AD.

Cai Lun invented paper when he saw a wasp knitting his hive. So as soon as he went home, he cut bamboo fibre then put it in hot water, smashed it on a wooden stick after he poured the whole mixture on a flat and smooth bit of carpet. Finally he let it dry then Voila! The first piece of paper was made!

Before we made paper, people carved the information in animal bones, skin or other heavy things. This was a very big deal because paper changed the way people wrote and shared information. It made it much easier to write things down and share stories or ideas.

BI SHENG

Bi Sheng lived in China from 990 to 1051 AD. He invented a really special way of printing called movable type. This new way of printing made it much faster and easier to print books. It was a big step forward in making books quicker to produce. However, this type of printing also had some bad effects on nature, which wasn't so good.

SHENG KUO

Sheng Kuo lived in China from 1031 to 1095 AD. He was a very clever person who created something very helpful – the magnetic compass. This invention was like a magical tool for travellers as it helped them find their way while exploring new places. Sheng Kuo discovered something amazing – that the compass doesn't point exactly to the regular North Pole but to something called the magnetic North Pole. This invention changed how people travelled and explored new lands.

HUA TUO

Hua Tuo lived a very long time ago, maybe between the years 108 and 208 AD. He created a special medicine named Anaesthetics that made people not feel pain during surgeries. This was a huge help to people who needed surgery because it made them more comfortable. Hua Tuo was also very skilled at using herbs and acupuncture to help people feel better.

These inventors from past China were incredible! They not only changed China but also influenced the entire world. Their remarkable innovations continue to impact us today. Think about it – paper made writing and sharing stories easier; the compass guided explorers on exciting adventures, and anaesthesia helped people during surgeries. These inventors were like superheroes, using their brains to make life better for everyone!

But it doesn't stop there. China is still inventing fantastic things today. Some are gadgets that make our lives easier, while others are fun and make us laugh. These new inventions show how smart and creative people in China are, just like their ancestors from the past.

Remember, even though these inventors lived a long time ago, their brilliant ideas still inspire us to dream big and create something amazing. So, who knows? Maybe one day, you could be the next great inventor, making something incredible that changes the world!

Sharing Our Heart Innovating Our World

The French International School, TKO, Takeuchi, Yuki – 8

Good morning, and a warm welcome to our Parents. Today we arrange an adventure on Ancient Chinese Inventions. We want to motivate our kids to be more creative and innovative. Every child should have a right to grow towards their potential. Children should be allowed to learn, to explore, to create and to innovate. However, children who live in poverty in China lack of opportunities to learn, to develop their curiosity and to realize their potential. Your unwavering support can help them to meet their education needs and grow towards their potential. Your sponsorship can drive them to become more motivated, more creative and more innovative. Hope everyone has a wonderful adventure this morning!

“Here!” a boy grabbed my hand and brought me to his stall. His name is Tom Gates. “Please take a card,” he asked. I took a blue card and there were words ‘guess what am I’ on one side and the other side was a picture of a spoon at the center of a square bronze plate. “Compass?” I said. “Bingo!” said Tom. “The inventor of the compass was a Chinese named Shen Kuo. He invented the compass in the fourth century BC. Kuo made use of lodestones and shaped them into a spoon shape. Lodestones are naturally magnetized. Kuo placed the spoon on a square bronze plate. The bronze plate is a replica of the Earth magnetic field. When the spoon is spun, the neck of the spoon points to the South. In other words, the bowl of the spoon points to the North. The spoon is a replica of the “South Pointing Spoon”. One interesting fact is the first compass was not used for navigation or finding land direction. It was used for locating good sites for constructing a tomb,” said Tom, looking at me. I spun the spoon on the demonstration table and waited until it stopped. Tom took out a compass from a drawer and put it next to the spoon. What a surprise, the bowl of the spoon was in the same direction as the iron needle of the compass. Suddenly I heard a thunderous applause from the adjacent stall. Without thinking, I moved to the crowd in front of the adjacent stall.

Looking through the crowd of parents, I could see some black powder in a transparent container and some fuses on the table. Mr. Fullerman, year six class teacher, put one end of a fuse into a small pile of black powder. He ignited the fuse and the heat travelled along the fuse until it reached the black powder, eventually forming low explosive fireworks. “Gunpowder was invented by Alchemists in China during the Tang dynasty in the ninth century. It is listed as one of the “Four Great Inventions” of China. Gunpowder in ancient China was a mixture of saltpetre, charcoal and sulphur. It was known as black powder. When gunpowder was just invented, it was low explosive and was widely used in propellants in firearms, rocketry, mining, quarrying and building pipelines, tunnels and roads. Since the eleventh century, gunpowder had been used in making war weapons,” explained Mr. Fullerman.

Many parents were queuing up in front of the bookmark stall. Some year six students were busy making the paper. The paper was used for making bookmarks. “Ancient Chinese were writing thousands of years before the paper existed. People carved words on clay or stone tablets. Some wrote on silk, which was very costly. Some used the stems of the papaya plant. Ancient Chinese wrote on bamboo. They tied bamboo strips to make books. This book making process took a long time and those books were heavy to carry. A Chinese, named Cai Lun, who was a court official, always used bamboo for writing and reading. He therefore understood how inconvenient it was. Cai wanted to solve the problem. He mixed the tree bark, hemp, fishing net and cloth. The mixture was used to make paper. The materials Cai chose were lighter and easier to write on. Cai brought his invention of paper making to the Chinese Emperor during the Han dynasty and he kept on improving the paper making process. Eventually the use of paper spread throughout China. We are now going to use Cai’s method to make paper,” a primary six student, Delia explained to the parents. Rolls of paper were generated and kids cut the paper into pieces with different shapes. Parents were so excited, and they couldn’t wait to design their own bookmarks. “This time we are going to use woodblock printing to print your name on your bookmark. Woodblock printing was believed to be invented in the Tang dynasty in the seventh century AD. Printing stimulated the development of a sophisticated paper industry with many different specialized papers created for different purposes. Wood for printing blocks usually came from date or pear trees. Text to be printed was first written on a piece of paper. The paper was then glued face-down to the wood block and the characters on the paper were carefully engraved on the wood using a knife. The surface of the wood block was then inked and covered with a sheet of paper. By brushing the paper gently over

the engraved characters, the text was printed,” another year six student, Rita, briefed the parents. The students helped the parents to print their names on the bookmarks. “Fabulous!” I said. I felt amazed when I got my bookmark.

“Ladies and Gentlemen, feel free to go to our Charity Sale Table. Our students have made a lot of lovely items relating to Chinese Inventions, such as oil paper umbrella, abacus, mechanical clock, noodles, dim sum for sale. Your donation will all go to KIND HEART for helping the poor children in China,” said the principal.

Parents took the opportunity to purchase and make their donation to KIND HEART. “What a wonderful and meaningful adventure I have!” I said.

The Way of the Compass

The Independent Schools Foundation Academy, Chua, Chung Hei – 9

Imagine you're lost in a forest, your phone has unfortunately run out of battery, and you are alone. How are you going to get back home? You scream and shout for help, but no one is around to hear you. You lose hope and drop your head in despair. You see your shadow and a lightbulb goes on in your head! You smile and look up to find the hot, bright sun and remember that you brought your compass. You quickly reach inside your pocket, take out your compass, put it on the palm of your hand, and start walking north, the direction of your home. You finally get back to town and the Chinese have saved your life. How?

You may be surprised to know that the compass was actually not invented for navigation. Instead, it was used for geomancy and fortune-telling. Feng Shui is another word for geomancy and can be viewed as a type of art. Feng Shui has a specific way to design and rearrange objects, buildings, and space in an environment to create peace and harmony. It is said that it can also bring good fortune and lots of money. The roots of Feng Shui are planted in Taoism and mean "the way of wind and water." Although it started in China, it has spread to the West. Many people have used and still use Feng Shui to navigate their lives from where their beds should be placed at home to where they should put their work desk in the office to make more money. Facing the wrong direction could affect your concentration, luck, and livelihood. Feng Shui is taken very seriously in China and now all over the world.

The compass was first used for navigation aboard a ship in 1371 when a Chinese explorer named Zheng He led a fleet of ships through seven major ocean voyages across Asia, east Africa, and the Middle East. It was later used throughout Europe with other explorers. The first compass that the Chinese invented was made out of lodestone. Lodestone is a type of mineral magnetite that is a naturally occurring magnet that aligns itself with the Earth's magnetic fields. People in Ancient China discovered that if lodestone was suspended, it would be able to move freely, and they noticed that it would always point towards the magnetic poles. Nowadays, compasses use a magnetic needle which is free to move and the Earth's magnetic field pushes the needle to face the same direction as the magnetic field. The Ancient Chinese compass also had distinct markings on it with Chinese characters indicating the directions north, south, east, west, as well as northeast, northwest, southeast, and southwest.

Besides these directional markings, there were other symbols that were also found in the philosophical Chinese text called I-Ching. The Taoist belief is that the Universe is balanced from the Yin-Yang polarity and the connection between the two. The philosophy of the I-Ching allows and encourages change, movement, transformation, momentum, and regeneration. The I-Ching lives within us and the symbolism found in the I-Ching and virtues define us. The ancient sage is symbolised with an image of a dragon. It describes the goodness that is born in all of us. The sage lets his virtues determine his actions as a living practice. By doing so, the sage is able to lead by shining his inner light and becoming an example for others.

Comparatively, ISF's "Eight Virtues + One" is similar to the I-Ching compass where each virtue inspires students to respect and follow them, and by embracing these virtues, students will change, move, transform, and regenerate into a new being, better than when they first walked into school on the first day. The virtue Zhi means intelligence and wisdom. Zhi is in the center like the Yin-Yang symbol in the I-Ching compass as it demonstrates the polarity of how one's intelligence and wisdom can be used for lightness or darkness. The ISF Chinese virtues guide and educate its students to nurture creativity, critical thinking, and lifelong love of learning for academic, personal and social development. These virtues allow its students to build life skills through experiential learning and encouraging learners to act as empowered and resilient global citizens who act with the care of others. By doing so, it enriches everyone's life.

The Ancient Chinese compass, originally used for feng shui to bring people good luck and prosperity, has similarly brought good luck and prosperity to aircrafts, ships, and land vehicles by guiding them safely back home. Without this Chinese invention, we would literally be lost. With this Chinese invention, the principles of the I-Ching and ISF's Eight Virtue's + One have counseled millions of people around the world by directing them down the right

path. Modern technology such as the mobile phone is not 100% reliable, therefore, learning about our history and their inventions that have shaped the way we live today is important. Our Ancient Chinese history will always be a part of our lives. Whenever you feel lost, look up towards the sky towards the sun and you will be led safely back home.

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A Sweet Invention of Ancient China

The Independent Schools Foundation Academy, Zhang, Rachel Ruochu – 10

Imagine a world without ice cream, the creamy, cool delight that tantalizes our taste buds and offers sweet respite on a scorching summer's day. We owe our gratitude for this frozen treat to the ancient Chinese, who unlocked the secrets to crafting a dessert that would soon be enjoyed across the globe. While ancient China is well known for a multitude of remarkable inventions such as papermaking and gunpowder, the invention of ice cream, though seemingly less important, holds a special place in history as well, enticing us with its unique blend of flavors and its ability to transcend cultural boundaries.

Although many give the credit of inventing ice cream to Marco Polo, an Italian explorer, modern discoveries and research have found that the origins of ice cream can be traced back to ancient China, where the invention dates back to around 200 BC. During the Tang Dynasty, the ancient Chinese are known for the development of a frozen dessert made from a mixture of ice, rice, and snow. The earliest known method of making ice cream involved mixing milk with ice and then packing the mixture in snow to freeze it, creating a tasty treat that would be slowly developed over time.

One of the earliest mentions of a frozen dessert resembling ice cream was around 618–907 AD, when the imperial court is said to have enjoyed a frozen mixture made from buffalo milk, flour, and camphor. This early form of ice cream was a delicacy reserved for the elite. This frozen dessert was also mentioned in the “Nong Shu,” a Chinese agricultural encyclopedia written by the scholar Wang Zhen in the 14th century. It describes a method of creating a frozen dessert by mixing buffalo milk with rice flour and allowing it to solidify in ice or snow.

The Chinese were pioneers in the art of chilling and freezing food. They developed sophisticated techniques for preserving food using ice and snow, which included making flavored ices and frozen desserts. These early frozen treats were often made by combining fruit juices, honey, and sometimes even wine with ice or snow.

Early Chinese versions of ice cream differed from the creamy, dairy-based confections we are familiar with today. They were more akin to sorbets or frozen fruit desserts. Nevertheless, these early experiments laid the foundation for the evolution of ice cream as we know it.

However, during the Song Dynasty (960–1279 AD), a more advanced technique for making ice cream was developed. This involved using a mixture of milk, rice, and salt, which was packed in metal containers and then packed in a mixture of ice and salt to freeze. It is believed that these delights had a slightly better taste resemblance to the ice cream as we know it today. The sweetness gave the people enjoying the treat a happy, fluttery feeling, just like ice cream does to us today.

The techniques and knowledge surrounding frozen desserts gradually spread beyond China's borders. Arab traders encountered these frozen delicacies during their travels and introduced the concept to the West. Over time, ice cream recipes and methods were adapted and refined by different cultures, leading to the diverse range of ice cream varieties enjoyed worldwide today.

While the exact process and ingredients used in ancient Chinese ice cream may differ from modern recipes, the Chinese influence on the development of frozen desserts cannot be denied. Their early experimentation with freezing

techniques, use of natural ingredients, and appreciation for sweet and refreshing treats laid the groundwork for the delightful indulgence we now cherish.

Although the ice cream today bears little resemblance to the frozen dessert that was enjoyed thousands of years ago, there is no doubt that ancient China played a significant role in the development of the delightful treat people all over the world enjoy every day. A magnificent country that invented several great things in the past, present, and probably will continue to do so in the future, China's inventions have affected us and our daily life today in every important detail.

The Excellent Machines in the Future

YK Pao School, Chang, Ruby – 9

Most people has known that the technology is very advanced in China, so I think something incredible will happen.Maybe in the future, robots can help people do a lot of things or the world will have no people and just robots.many amazing things could happen, but sometimes It could also be scary too!

I think in the future there will be a machine that can let you rest and relax.You could sit in that machine which is a bathtub and enjoy or have a rest.there are ten legs under the bathtub, so it can move like a car. You can use the controllers inside the bathtub to control it.the controllers are waterproof so you don't need to worry.this machine can do six things at the same time because it has ten legs, two legs need to walk and run, two can give you a massage .It can help you cook, clean the floor, fold clothes, give you a massage, and do many other things too!If I have this machine I would give it to my mom for a birthday present.She will like it very much!

This is an more amazing machine!this machine is a very intelligence table.It looks like a common table but there is a huge cabinet besides it.Inside the huge cabinet is a lot of fresh fantastic foods that you will definitely like.When you tell the cabinet what do you want, it can put the foods on the table and the table can cook the foods for you.I really want this table because I want to give it to my dad for his hard work everyday.He will must like it!

The technology will get better and better.I think someone can invent those two cool machines one day.But it can be very hard!

Red Envelope

YK Pao School, Li, Tsz Ching Hannah – 8

China is an ancient civilization with a long history of five thousand years. It is also a country with many inventions. Today, I would like to introduce to you a very interesting traditional invention – red envelope.

The red envelope, which has long become a symbol in modern society, can be traced back to ancient China. It was not until the Song Dynasty that red envelope culture really became popular. Since Zhao Kuangyin, Emperor Taizu of Song Dynasty, showed great kindness to scholars. The emperor always caught every opportunity to please his courtiers. Therefore, giving red envelopes to ministers during the New Year also became a custom in the Song Dynasty to keep in touch with the feelings of Kings and ministers.

In ancient times, people folded red paper into the shape of money bags, filled them with money, and gave them to their relatives and friends. This way not only expresses the blessing, but also reflects people's yearning for a better life. In fact, it first appeared to send blessings to elders during New Year's greetings, expressing love and respect for them. Over time, red envelopes have gradually evolved into a tool to express emotions and are widely used on important occasions such as getting married, giving birth to children and going to school.

The value of red envelopes lies not only in the amount of money they contain, but in the emotions and blessings they carry as well. Each red envelope is a token of one's heart, a gesture of care and blessing for one's relatives and friends. It is a kind of emotional exchange rather than material exchange.

Nowadays, red envelopes usually refer to electronic red envelopes, that is, red envelopes sent via mobile phones or computers. This kind of red envelope is more convenient and faster since it can be sent anytime and anywhere, no matter friends who are far away or relatives around them, they can express their hearts through electronic red envelopes.

With the development of science and technology, red envelopes will be more widely used. For example, in the future, red envelopes may not only be money, but also various forms of gifts, such as books, music, movies etc.

As a traditional invention, red envelopes not only enrich our culture, but also bring a lot of joy to our lives. Let's pass on and carry forward this excellent tradition together, and let red envelopes play a greater role in our lives.

Tik Tok

YK Pao School, Dong, Sophia – 9

A long, long time ago, in USA, people mostly use Instagram, WhatsApp, Facebook or whatever. But one day, until the year 2016, TikTok became America's most useful App.

What's TikTok anyway?

TikTok, is a App that people communicate with short videos.

When did TikTok "born"?

It was born in AD 2016, September 20th.

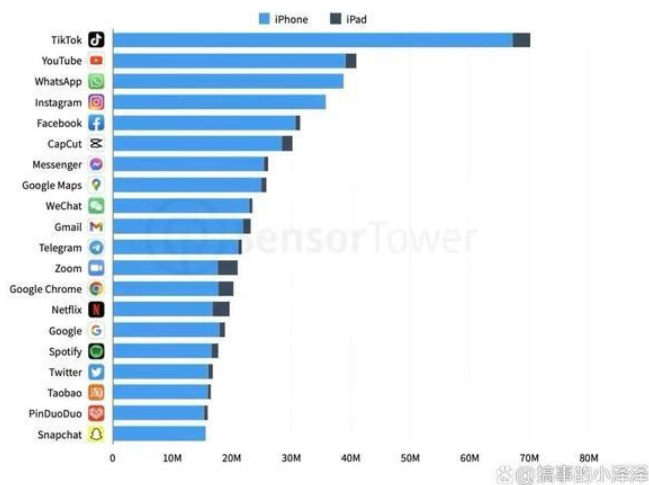
TikTok facts

- 1, After TikTok borned, it became the world-famous App.
- 2, TikTok was designed by a man called Zhang Yi Ming from a company called "Byte Dance".

Why was TikTok invented?

The most popular reason is it is just an easier way to show your personality.

App Store - Worldwide



TikTok was a really big invention from China, and it stands out a HUGE step for China's inventions.

Chinese Inventions

YK Pao School, Goh, Rei – 9

A presentation about the invention Of paper and the inventor

About the inventor

Cai Lun (the inventor of paper)formerly romanized as ts ai lun,was a Chinese court official of the eastern Han dynasty.he is traditionally regarded as the inventor of paper and the modern paper making process.although early forms of paper has existed since the third century BCE, he occupies a pivotal place in history of paper due to his addition of pulp via tree bark and hemp which resulted in a large scale manufacture and world wide spread of paper.at the year 105 Cai Lun confiscated his idea of forming pieces of paper from the macerated bark of trees, hemp waste, old rags and fish nets.

How paper is made

The cellulose is extracted from the wood chips and put into a machine called a digester that breaks down the wood. The bits are all made into a paste-like substance called pulp, which is the processed by a machine that flattens and dries it into paper.

How he thought of it

He said the invented method of paper making was inspired by wasps and bees. Only scholars like Confucius could decode the meaning.cai lun came up of the idea of making sheets of paper from macerated tree bark,hemp waste,old rags and fishnets around the year.

The use and purpose of paper

Paper is a thin substance that people use for printing, painting, graphics, drawing, signage, printing, design, decoration, packaging, writing and so much more.We can use paper to make lots of things that can actually help your daily life.Although it can some times effect the forests,trees that they cut down to make more building spaces won't go to waste anymore.and crating paper is now one of the 4 Chinese inventions.

A world without paper

Can you Think about if the world had no paper.there will be no news paper,paper-tape,origami/folding,notes,diary,printing,books/comics for entertainmen and lots more. There might not event have paper money in this world if paper was not invented.wouldn't that be horrible!

How the word paper was invented

Did you know the word (paper)came from the Greek word papyrus."which refers to the plant used by ancient Egyptians to make a writing material.papyrus was made by weaving together strips of stem from the papyrus plant.

Oldest surviving paper

The oldest surviving piece of paper is from long ago at the 2nd century CE,known as the dunhuang paper."and of course it was discovered in dunhuang ,china,that contains lots of texts and artworks.

Japanese inventing origami

Did you know that according to research the Japanese devised origami,The art of folding paper, about a thousand years ago,but its origins could be in china.its also possible that the folding method was used on other materials before the paper was produced,so the origins of recreational folding could be traced back to fabric or leather.

The first piece of paper

The first paper in history was made by the papyrus plant.this type of paper was discovered in the tombs and temples of ancient Egypt dating back to 2700 b.c. The amazing thing about papyrus paper is that it is extremely strong,durable,and elastic,produced naturally.

A Great City from Chinese History

YK Pao School, Gu, Sihe – 8

Xi'an, formerly known as Chang'an, is one of the birthplaces of the Chinese nation and eastern civilization. There is a local saying that goes like this: if you want to see China over the past 5000 years, go to Xi'an. Xi'an has a history of over 6000 years and had been the capital of countries for 1200 years. Xi'an played a crucial role throughout Chinese history, with 13 dynasties having the city as their capitals.

"Chang'an culture" represents the backbone of Chinese culture. Xi'an was once China's political, economic and cultural center and one of the earliest cities opening to the outside world. Since the Western Han Dynasty, Xi'an has become the key city of economic and cultural exchanges and friendly relationships between China and other countries. It was the eastern starting point of the ancient Silk Road, connecting Asia with Europe.

Xi'an is also the home of one of "Eight Wonders of the World" Terracotta Warriors, showing the city's profound history and culture. With historical and cultural heritage, Xi'an enjoys a reputation as the a "Living History Museum". The amount and value of its cultural relics ranks No. 1 in the world.

The little dictionary 

Civilization means: a relatively high level of cultural and technological development specifically the stage of cultural development at which writing and the keeping of written records is attained.

Dynasty means : a succession of rulers of the same line of descent. A dynasty that ruled China for nearly 300 years

Political means: of or relating to government, a government, or the conduct of government

Profound: having intellectual depth and insight

Heritage: something transmitted by or acquired from a predecessor

Reputation: overall quality as seen or judged by people in general

The New China Paying Model

YK Pao School, Xu, Yachen Claire – 10

Do you need to take wallet with you everyday? In China, the answer is no. Most people go out with just a phone, because every social and paying needs can be satisfied on the phone thanks for many new inventions of China Apps, like Wechat, Alipay, Meituan, Douyin, Taobao, etc. Today, I want to talk about Alipay, this is a super app you can basically do everything about money.

The very basic function of Alipay is to receive and pay money. Say for example, if you need to buy a bottle of water in a convenient store, you just need to show the QR code of your Alipay account, the cashier of the store will scan it and the payment is done immediately. The same practice applies to receiving money as well, you could show your QR code to others, and they scan it so that they are able to pay you.

The more advanced function is that you can loan money from Alipay just like credit card. It will assess your identity and profession, and then decide your loan quota. Afterwards, congratulations, you can spend before you own the money. But remember, you need to pay back the money before the monthly due date. You need to be careful of not spending too much!

Alipay also possess other mini apps, like Eleme, Gaode, Taobao, and even small games. By having these mini apps, you don't need to download these apps but just open them in Alipay.

To me, my connection with Alipay is that I receive my monthly pocket money on Alipay. I have a sub-account under my mom's, she can easily transfer pocket money from hers to my account. I have smart watch and it has my Alipay QR code inside. So when I go out without my parent, I can turn on the Alipay QR code in my watch and I can pay and treat my friends with snacks and drinks. I really love it!

What I introduced is only a tiny part of Alipay, it has other more functions you can explore. It is fantastic that China has so many useful and friendly inventions, you use it anytime anywhere that makes your life easier and happier.



Creative Writing
Non-Fiction
Group 2

Tribute to Modern Social Media Guru, Allen Zhang

Ching Chung Hau Po Woon Primary School, Lam, Sophie Valarie – 11

China has been the source of many innovations, scientific discoveries, and inventions, which include the Four Great Inventions: papermaking, the compass, gunpowder, and printing. The Chinese even invented the first paper money over one thousand years ago. Even though these inventions were not perfect at first, future generations used their knowledge to improve them, making our lives easier and more convenient. Even in modern times, China's apps, such as Taobao, are popular, and many platforms in the same genre are trying to emulate their success.

Among the many amazing inventors in China, I would like to highlight Allen Zhang and his remarkable creation. WeChat was the brainchild of Allen Zhang, a legend in China's tech sector. It is an instant messaging application that originated as a project at the Tencent Guangzhou Research and Project Center in October 2010. The original version of the application was created by Allen Zhang himself.

WeChat allows people to communicate through texting, voice messages, audio calls, and even video calls. This enables individuals from anywhere to connect with their contacts at any time. Without instant messaging apps like WeChat, people would have to spend a significant amount of time sending emails or writing letters to communicate with others. WeChat's video calling function is also a fantastic way to bond with family members and friends when they are in different locations and cannot meet in person. Additionally, WeChat provides a convenient service where users can scan QR codes to add contacts, eliminating the need to remember or note down phone numbers. Furthermore, WeChat offers a feature where users can upload photos, videos, or text to share with their contacts, allowing them to share glimpses of their lives and emotions.

In my opinion, the app created by Allen Zhang, WeChat, has made communication with others highly accessible and engaging, breaking the boundaries of time and place. Allen Zhang's creativity in conceptualizing WeChat is commendable, as he has significantly enhanced the convenience and ease of many people's lives.

Greatest Chinese Innovations in the Recent Era

Ching Chung Hau Po Woon Primary School, Lau, Tsz Yin – 9

In the past 20 years, with the rise of China's technologies, China becomes the largest invention and innovation country in the world, introducing new modern inventions that revolutionise the daily lives of everyone. These inventions maybe not have all started in the East, but surely they have made big differences to China and to the other parts of the world.

One great innovation is the "Live streaming platform" such as TikTok and XiaoHongShu i.e. Little Red Book. These platforms allow billions of users across the world to create and share short videos, showcase talents, creativity, and everyday experiences. Therefore, everyone could show themselves to the public. These platforms made it possible to sustain a culture of connecting millions of people worldwide and providing a platform for self-expression.

Another great invention is "Electronic cars". China has made superb technological advancements in developing electric vehicles (EVs) and promoting reliable transportation network and navigation for driverless cars. It helps with reducing pollutions and providing better air quality, allowing the country to become a leader in EV production.

The next great invention should be "Electronic payment" and its significant rise and usage in China. Mobile payment systems such as Alipay and WeChat Pay have changed the way of conventional money transactions through cash and credit cards. Less or no paper money or cash is used for payments, making money flow more conveniently and accessibly in the country. This technology has changed payment systems and advertisement methods used by almost all the retails, dining, transportation services and more!

Furthermore, China's "High-speed railway" train and its network are significant leaps in the country's journey of invention. The train's speed goes up to 350 km/h, providing fast and shorter trips for major cities. Its prices are affordable, providing accessibility to the public and supporting the economy through the fast movement of goods and people.

As a primary student, I find pleasure in learning the rise and importance of China and its inventions. It's great to know how these inventions are changing our daily lives and we must open our mind and think of how we could contribute ourselves more productively as technologies continue to blossom.

The Most Iconic China's Inventions

Ching Chung Hau Po Woon Primary School, Lee, Tsz Ho – 12

In the past China, there were four great people, which led to these four great inventions. Without them, our world may have changed already. There are four inventions, and they are papermaking, compass, gunpowder and finally, printing. The first one I'm going to talk about is papermaking.

Papermaking is a way to make paper and it was invented by Cai Lun during the Eastern Han Dynasty. He used a lot of ingredients to make one singular paper only! Also, it needs a lot of time because we need to wait. Moreover, we need to boil it, then wash it and that needs a lot of energy to do it! It may need to do it repeatedly! However, without Cai Lun, we would not have paper nowadays.

The second one is the compass that was invented by Shen Kuo. A compass is a device that shows the cardinal direction used for navigation and geographic orientation. The first compass was named magnetic compass then later called only 'compass'.

Before magnetic compass was invented, there was less good than a compass and it is called guide fish. In the past, people used compasses to make sure they are not lost.

The third one is gunpowder. Gunpowder was invented by Sun Simiao, a medical scientist in the early Tang Dynasty. Sun Simiao found that if three medical things mixed together, it can burn violently when ignited with fire. In the past, hunters often use gunpowder to set up traps to catch prey. And people used it to dig mountains, build roads and build canals.

The final one is printing, which was invented by Bi Sheng. Printing has a lot of various movable types. Such as clay type, wood type, pottery type, etc.

I was inspired by these four great 'Heros'. And again, without them, the world right now may be different.

New Tales of China's Inventions

Ching Chung Hau Po Woon Primary School, Li, Ho – 9

I think in the near future, there will be a lot of different kinds of housework robots, sports machines or even book-making machines. They look interesting and useful for us, don't they? Let me introduce some of them to you.

First, I think there will be some doing-housework machines. They are helpful when you do the housework, you just need to charge them up for ten minutes and when they are fully charged up, you just need to decide which housework you want it to do. Lastly, press the correct button and the machine will do it in super fast speed. This machine can do lots of housework, such as sweeping or mopping the floor, clean the windows and the bedroom etc.

Second, I think there will be some playing badminton machines. These machines are interesting because they can play badminton with people! They can play excellent as they have cameras to know where the shuttlecock is, when they have finished detecting, they run to the right position and hit the ball back to its competitor. The most magical is that the machines seldom miss! It will be exciting when the machines play with some excellent players.

Third, I think there will be some book-making machines to make plenty of books. You just need to put a five-dollar coin at the money slot and choose what the book is about, and then you add some papers, and the book will be finished in an hour! The machine can draw and write very nice, it can also make the book cover by itself too! So, we can have our own unique books at any time.

I think above machines will appear in the near future. These new inventions will be added a lot of fun and convenience to our lives, and I am really looking forward to them and will try them out at the first hand.

New Tales of China's Inventions: The Origin of Ketchup

Ching Chung Hau Po Woon Primary School, Lin, Yerrey – 11

China is renowned for its four great inventions: paper-making, printing, gunpowder, and the compass. However, there are numerous other inventions that originated in China, which are less known but equally intriguing. One such invention is ketchup, the ubiquitous tomato-based sauce used in cuisines around the world. How did ketchup come from China? What is the story behind this popular condiment? This essay explores the origin and development of ketchup, from its ancient roots in Fujian Province to its modern adaptation in America.

The word "ketchup" means fish sauce in Fujianese, a dialect spoken in the southeastern coastal province of Fujian in China. The "chup" in ketchup actually means "sauce" in Mandarin, while the "ket" in ketchup refers to fish. Originally, ketchup was a fermented fish sauce made from salted and preserved fish such as anchovies, mackerel, or sardines. This sauce was a staple in the diet of the Fujianese people, who used it to enhance the flavour of their dishes, including noodles, rice, and seafood.

In the 1500s to 1600s, when Fujian was a bustling seaport, Fujianese sailors learned about this fermented fish sauce from Vietnamese fishermen, who also had a similar sauce called nuoc mam. The Fujianese sailors adopted and modified the Vietnamese recipe, adding spices such as ginger, garlic, cloves, and star anise to the fish sauce. They also began producing another product from the fermented fish, called arak or araq, which was the early ancestor of rum. Arak was made by combining distilled fermented red rice with molasses and palm wine. It became a strong alcoholic drink popular among sailors and traders navigating the South China Sea.

As Chinese sailors continued to sail through the South China Sea, they introduced their ketchup and arak to other ports and countries, including Indonesia, Malaysia, Thailand, and the Philippines. They traded these products with the local people, who also enjoyed the taste of the fish sauce and liquor. In the 1600s, British and Dutch merchants started purchasing large quantities of arak and ketchup from the Chinese sailors and soon developed a fondness for ketchup as well. They brought the ketchup back to Europe, where it was well-received by consumers. However, the Europeans made some modifications to the original recipe, such as adding vinegar, sugar, and mushrooms to the fish sauce.

It wasn't until the 19th century that tomatoes were added to ketchup for the first time. This was largely due to the influence of American colonists, who had access to abundant tomatoes from the New World. They experimented with different ingredients and methods to create their version of ketchup, which turned out to be sweeter and spicier than the original fish sauce.

By the mid-1850s, tomato ketchup had become the dominant form of ketchup in America, and the preserved anchovies were omitted from the recipe. By 1980, the demand for better preservation and the American fondness for sweetness led American ketchup manufacturers, such as Heinz, to significantly increase the sugar content of their ketchup.

Today, ketchup is one of the most widely consumed sauces globally, with different varieties and flavours available in various regions and countries. Few people are aware, however, that ketchup originated in China as a fish sauce used by sailors and traders in Fujian. Ketchup is a testament to the creativity and innovation of the Chinese people, who have invented numerous products that have influenced and enriched the world. It also reflects the cultural exchange

and adaptation that has occurred throughout history, as different cultures have encountered and modified the sauce according to their tastes and available resources. Ketchup is not only a delicious condiment but also a fascinating story of Chinese invention.

Super AI Robot

Ching Chung Hau Po Woon Primary School, Wong, Sze Wai – 11

After many years of scientific development, computerisation is common across the world. In our daily life, we often use smartphone, tablet computer, laptop, and personal computer. Some even live in an Artificial Intelligence home, where lamps, TVs, air conditioners, and curtains will be automatically adjusted based on user's needs. The AI Electric car is also very common in China. Many AI robots are being developed in many countries. They are using Supercomputer and Big Data to control robots to perform various tasks, like waiting jobs, dancing, or even some difficult physical actions such as jumping and rolling. Watching them move makes you feel amazed and mesmerised. In the military aspect, they use AI robot to check the bombs and use drones to detect enemies in battlefields. For ensuring cybersecurity in the economy, many financial companies will use voice and face AI detection for owner recognition.

With the rapid development of science technology and computerisation of systems and services, I speculate that an amazing invention might appear soon, which will appear as a super AI robot. Why is it called Super AI Robot? It can act as a family helper, and it will help us go buy groceries in the supermarket. It will have an excellent memory and will never forget house chores. Functioning through autopilot, it can navigate its way to the markets, detect and recognise food to select, and even have electronic payment function like Alipay, Payme and Wechat pay embedded for completing payment upon owner's permission and verification.

As an AI house robot, it will possess the ability to cook as a chef. By telling it the preferred food to be cooked, it can prepare fascinating food dishes like Gillette Pork Chop Rice, Hand-pulled Noodles, Fried Rice, Lobster Yee Mein, Cream Chicken Soup and cheesecake. It can skilfully use its hand and eyes to detect if food is cooked, uncooked, fresh, or contaminated, and it can also distinguish between sugar and salt! Also acting as a waiter, it can set up the table and prepare and serve all the food immaculately. Apart from serving, it will also clean up the table after the meal and it will also help us wash the dishes. Its hands will not rust as its body is made of stainless steel.

The beauty of this AI robot lies in its ability to act as a teacher or tutor who can teach me how to complete questions I don't know how to do. It can also review exams and test with me and teach me step by step so I can complete understand what I am learning. I'm sure a study companion like this will help me get good marks at exams and tests. As an AI Robot, it will review new topics with me so that I can understand what teachers are teaching in class. It will be the super teacher who has intelligent answers to all questions!

I wish the Super AI Robot will be born within the next 10 years. I am so excited to welcome it as witness its birth and development!

Chinese Medicine

Farm Road Government Primary School, Cheung, Sui Lam – 12

China is a place with lot of inventions. Most people think paper, gunpowder or the compass are the most useful invention ever. But I think it is Chinese medicine. Some Chinese medicine includes needles and plants or other interesting ideas to help people with their health. Some medicines even use tiger bones, fish bones, bird bones, needles or herds. There have been a lot of Chinese medicine inventors, but the king of Chinese medicine is called Shennong.

Shennong was a master of the Chinese medicine. He was a god of the wind, but he loved Chinese medicine. He used many ways to use Chinese medicine. He always used a lot of plants to make Chinese medicine and tested the plants himself to make sure they were safe to eat. He also taught many people his knowledge of Chinese medicine and he invented the most interesting way to heal people – using needles. But he unfortunately died because he accidentally tried a poisonous plant. However, we still remember him to this day.

Shennong also invented the plow, found plants there were poisonous and taught people how to be farmers and how to grow herbs and plant crops. Shennong wrote all that down in the Shennong Bencaojing, but many people think that it was actually written by many authors who wished to honour him. He is still considered the father of Chinese medicine.

Shennong may have existed as a real person, but he was also a god. He was also known as the emperor of fire. He is often shown with horns on his head, snowy white hair and beard and skirt which is made of crops and cloth. Shennong also created tools like the axe.

When Shennong became powerful, the Chinese people were sick and weak. They didn't know what medicine could help them. However, Shennong was a wise man who saw the people suffering. He decided to help them by teaching them how to live better.

Shennong invented the plow so that people could control where their crops grew. He invented the axe so that people could cut logs to make firewood and make the winter more comfortable for the people.

Shennong also taught people how to find drinking water by digging wells. This way of collecting water was much easier and cleaner for preventing diseases from spreading.

Although Shennong died a long time ago, people still remember him and built a temple called the Shilin Shennong Temple, dedicated to him to honour him for helping us. The temple is located in the Shilin District of Taipei. The original building was created in 1709, but the current building was created in 1971. In 1812, the temple was actually an important base during a conflict between villagers from Zhangzhou and Quanzhou.

Without Shennong, we would be without Chinese medicine. Chinese people would still be weak and sick. Shennong is an important person in our life. We need to learn from him and respect him. We can learn from him by reading about his history and success. We can also visit Shilin Shennong temple to honour him.

Will you be inspired to learn more about him?

History of Paper

Farm Road Government Primary School, Chow, Kin Hei Russell – 12

China invented many things in history. Things like the compass, gunpowder and even natural gas pipes were invented in China. But today, I'm going to tell you how China invented paper.

Paper was invented many years ago. Although today, five hundred pieces of paper only cost twenty-five dollars, its invention was very important. In the Han Dynasty, before paper was invented, people use leaves, bamboo slips and wax plates to write stuff. These materials were either too heavy or too expensive.

When Cai Lun knew that materials used for writing were bad, he tried to combine rags of cloth, fishing nets, mulberry trees and the inner bark of bamboo. He mixed the composition with water, and after the mixture started to soften, he poured the mixture onto a flat piece of woven cloth, draining the water and drying the mixture until it formed a thin matted sheet. Cai Lun reported his discovery to the emperor who commended him for it. The process was adopted throughout the whole of China. It then spread to the rest of the world. This invention was cheap and convenient so that the people could afford it and the paper was light enough to carry.

In the Song Dynasty, paper production techniques became even better and the main raw material was boiled bark. But paper was not only used for writing. In the Song Dynasty, they invented paper money. It was a massive improvement, because before paper money was invented, people used metal coins which were too heavy to carry. But if they used paper money, it was so much lighter. The paper money (jiaozi) was printed with woodblocks, using six colours of ink.

In the Yuan Dynasty (Mongol Empire), Kublai Khan issued a monetary form called chao. The Mongols showed it to Marco Polo. He was amazed by the idea of a government backed currency. However, the paper money was not backed by gold or silver and the Yuan Dynasty printed increasing amounts of the currency leading to runaway inflation.

China also use paper to invent toilet paper. Before toilet paper was invented, people used grass, moss or leaves. The reason they invented toilet paper is that using the other things to wipe is not comfortable, but using toilet paper to wipe was much better. Toilet paper was made using silk and tree bark during the Han Dynasty.

Wallpaper was also invented in China back in 200 B.C. Wallpaper printing techniques include surface printing, gravure printing, silk-screen printing and rotary printing. This is a material that has textured paper and covers the interior walls.

China also made oil-paper umbrellas. They were used for sedan chairs for cover, sheltering people from rain or sunlight, and believed to help drive evil spirits away. Nowadays, oil-paper umbrellas are mostly sold as works of art and souvenirs.

When the Japanese empire invaded China, all the paper money was turned into Japanese stamps until 1945. This lasted until the Japanese empire surrendered to America after dropping two nuclear bombs on Japan.

China also invented toys using paper. People in China don't like wasting useful material, so they made folding toys for their children using scrap paper. One of the folding toys is an inflatable paper balloon. Children fold the balloon, blow it up, fill it with some water and then throw it on the ground to make a loud sound.

Chinese people also used paper to invent golden venture folding. It is a special type of 3D origami that was invented by a group of Chinese people in the 1990s. They invented a style of paper folding that joins together

hundreds of identically folded triangular units to make a whole lot of different shapes. The finished model was given as a gift

China invented making things back in the past which were amazing. We should all be grateful for China.

History of Chinese Tea

Farm Road Government Primary School, Ho, Tsun Hin Nathan – 12

When people mention Chinese inventions, we definitely think about the four great Chinese inventions including paper making, printing technology, gunpowder and the compass. Actually, there are dozens of Chinese inventions that changed people's lives around the world. I'm now going to introduce another important Chinese invention here – tea production.

According to the ancient Chinese legend, Shennong discovered tea in 2737 B.C. That time, he accidentally poisoned himself seventy-two times while searching for edible plants. When he was about to be poisoned to death, a leaf fell into his mouth. He ate it and felt much better. This was how they say China first discovered tea and so tea was firstly used for medical purposes.

Tea was consumed in different ways in the past. It was a vegetable and could be mixed with grain porridge to eat. It went from being a food to a drink about 1500 years ago when some people found out using hot water and combining with moisture could create a complex and good taste from the green leaf. Tea became the emperor's favourite drink. At that time, China was the only country which had tea plants, so it became one of the three central Chinese export goods, along with silk and porcelain.

Tea is a very popular beverage around the world, and each country has its own unique tea culture and traditions. China, the birthplace of tea, has various kinds of tea such as oolong, black, white, and pu-erh tea. Bubble tea, which is also known as boba and black pearl tea, is a popular iced-tea drink made in Taiwan and has gained worldwide popularity. It is combined with milk tea, sweetener and bubbles, which are small balls made from tapioca or fruit jelly. Shaking the bubble tea with milk can produce a rich, silky texture. Lemonade tea is an iced drink from the United States that combines the tastes of tea and lemonade which can create a bright and refreshing taste. It has been popular since a famous American golfer asked his wife to add lemonade to iced-tea. Masala chai is a popular spiced tea that originated in India. People can make it by brewing black tea with different aromatic spices such as cardamom, cinnamon, cloves, ginger and black pepper.

In addition to loose tea leaves, there are different forms of tea around the world. Compressed tea, also called tea bricks, are blocks of whole or finely ground tea leaves that have been packed in molds and pressed into a block form. Tea bricks can preserve the quality of tea over long distances and long periods of time. Compressed tea was the most commonly produced and used form of tea in ancient China prior to the Ming Dynasty. In ancient China, tea bricks were usually made with thoroughly dried and ground tea leaves that were pressed into bricks or various other shapes. Some tea bricks were also mixed with binding agents such as flour and manure to better preserve their form.

Another form of tea is tea bags, which are small sealed bags made of paper that hold either whole or ground tea leaves. Some people designed these bags for aiding immersion in water to steep tea. In the history of tea bags, it is said they were invented by a New York tea merchant. He wanted to use a more convenient way to send tea samples to his customers. He settled on using little silken bags, which accidentally created tea bags, and nowadays the bag's material has changed from silk to paper.

Tea powder is another common form of tea form. The most popular example of this form is matcha, a tea made in Japan. Matcha is made by roasting green tea leaves and crushing them up in mortars into a powdered form. Nowadays, matcha is also used to flavour and dye food such as miso and soba noodles, green tea ice-cream, matcha lattes and a variety of Japanese confectionery.

A popular form of tea in modern times is tea capsules which are comprised of a tea concentrate and capsule shell. In this popular invention, most of the water soluble components of the tea's original leaves are preserved in the tea concentrate. When the instant tea capsule is placed in a brewing container, the capsule shell is contacted with water and the tea concentrate in the capsule generates some bubbles. Those bubbles attach to the powder which quickly dissolves into a clear tea drink. The instant tea capsule is convenient and easy to brew.

The Chinese people always say that, 'Firewood, rice, oil, salt, sauce, vinegar and tea are the seven necessities to begin a day.' Though tea is last on the list, we can see its importance in our daily life. Tea is the most consumed drink in the world after water. Tea drinking (called yum cha) is very popular in Hong Kong. Most elderly Hong Kong people usually have breakfast in the Chinese restaurant in the early morning to enjoy 'one cup with two pieces' meaning a cup of tea with two pieces of dim sum. They read newspapers and chat with friends and spend a whole morning doing this.

Having a cup of tea is one of the methods to relax. Many studies also tell us that regularly drinking tea can improve our mood, improve our focus, help our heart, boost our brain power, keep our metabolism up, boost our energy and much more. Do you like drinking tea? What type of tea do you like? I believe you would enjoy at least one of them.

New Tales of China 's Inventions – Gunpowder

Kowloon Rhenish School, Chan, Cheuk Yu – 11

China is one of the four ancient Civilizations. It had a long history and a lot of inventions but the well-known is the four great inventions that is compass, gunpower, papermaking and typography. Among the four great inventions, I think gunpowder is the most important. Gunpowder has two kinds: black powder and smokeless gunpowder.

The gunpowder was invented in Tang Dynasty, around 850 A.D. The emperor hoped to have eternal life so that he ordered some alchemists to make elixir of life. The alchemists tried many different ways but still failed. One day, an alchemist mixed 75 parts of potassium nitrate (saltpeter) with 15 parts charcoal and 10 parts sulfur to do it. Suddenly, it exploded with a flash and a bang when it reached flame. At first, gunpowder was usually used for making firecracker that helped the king for driving away bad things and get health. Later they used gunpowder for making fireworks for celebrate important festivals. In year 1232 in southern Song Dynasty people invented bamboo muskets and launch into warhead later, they invented artillery. In 1240, Arab people knew that China have gunpowder and spread this news rapidly. Then gunpowder introduced to Arab. In 1304, Arab people used black powder in the war. They put it inside a bamboo or iron tube to shoot arrows. In Europe, the earliest recorded cannon was exported from Ghent, Belgium, in 1313 but actually Yuan Dynasty (from 1276 to 1368), Mongolians already used cannons to against Russians. In 13th to 14th century, China used a lot of artillery and rockets in wars. In Ming Dynasty's capital from Nanking moved to Beijing in 1421 because Nanking is next to mountains which is not good at resist artillery and rockets attacks. In 17th century anaphase in Europe black powder was used to non-military purposes. Until 19th century, black powder is the only known propulsion fuel and explosives.

About gunpower good things. Now a days, gunpowder is commonly used in firecrackers and fireworks for celebration in festivals such as Chinese New Year, National day, Christmas party and ceremony as well as stage special effects in music concert. It produces colourful flash and light when it exploded. It can increase the atmosphere of the festivals and programs. It can also help for mining industry, demolition buildings and trading.

Unfortunately, people always used gunpower in war. Instead of having fun during celebrations. It made many people homeless even lost their life.

There is no doubt that gunpowder is really a great and important invention. Gunpowder can use either good things or bad things. Gunpowder good for celebration and industry use but also bad for war. We should think about how to use it in correct ways.

Exploring the World of Chinese Noodles

Kowloon Rhenish School, Chu, Kai Tik Caylus – 11

Have you ever tried noodles before? They are amazing! Noodles have been invented for centuries and they come in many different flavors and styles. They are loved by the people around the world for their delicious taste and unique textures.

The story of noodles started in the ancient Han Dynasty. A clever chef created them after being inspired by the moon's reflection on a river, isn't that fascinating? After that, noodles became a staple in Chinese cuisine, and they have evolved into a wide variety of types and shapes.

In the northern part of China, you will find a type of noodles which are called “la mian”, they are made from dough and they come in different thicknesses and sizes. They are hand-pulled noodles! Skilled chefs stretch and twist the dough to create long and elastic noodles. In the southern region, 'mi fen' takes the spotlight. These noodles are thin and silky, perfect for soups or stir-fried dishes.

Every region in China has its own unique noodle dishes. For example, in Yunnan, they have a famous dish called 'crossing the bridge noodles'. It is a fun and interactive way to enjoy noodles. You need to get a bowl of steaming hot broth and a platter of raw ingredients. You can add the ingredients to the broth and watch the chef cooking in front of you!

There are many types of noodles in China. Among them, I like “dandan mian” most. It is a dish originating from Chinese Sichuan cuisine, it consists of a spicy sauce, usually containing preserved vegetables. The spicy of the dish makes my mouth water. I usually eat it with my family. I think this is the best invention in the world!

Noodles not only taste incredible, but they also reflect the rich culture and tradition of China. You can find noodles almost everywhere around the world now!

Invention of Chinese traditional toys

Kowloon Rhenish School, Tse, Tak Hang – 11

I believe that a simple toy can bring us joy and inspire someone's creativity. Chinese invented lots of traditional toys. Most were folk toys. Can you name some of them? Let me show you three Chinese traditional toys.

Do you usually go flying kites with your family? You only need bamboo sticks, paper and strings to make one. Mo Zhai, an ancient Chinese philosopher, made the earliest kite. When the first kite was invented, it was not a toy. Kite was used as a military tool. It is hard to believe! In the Tang Dynasty, kites began to be more popular and became toys for entertainment and leisure. Does your kite have patterns? If yes, what is it? Patterns and designs of the kite are often used to symbolizing good luck and happiness in life. In various countries, including China, there are the Giant Kite Festivals held every year. It is an amazing event which will have loads of kites in the sky.

Have you ever seen a toy which is called 'Beyblade'? It was found in a Japanese comic, but the earliest 'Beyblade' was invented by Chinese. Tops were one of the most popular toys among Chinese youths. Archaeologists discovered that the first top was made by stone and was invented in China for at least four to five thousand years ago!

World Cup attracts worldwide attention. Some said that it was originated from China and named Cuju. Another traditional game was evolved from Cuju: shuttlecock kicking. Its history in China is more than two thousand years since the Han dynasty. Players form a circle and keep the shuttlecock in the air without using their hands. The rule is straightforward while the game is fun.

Most of the Chinese traditional toys were invented by folk artists. Nowadays, children and teenagers have forgot these incredible toys. I hope that I can tell you this message from the passage: Do not forget the things that may not be trendy. Traditions are valuable.

AI

LKWFSL Wong Yiu Nam Primary School, Chan, Tsz Yau – 11

China has a rich history of innovation and invention that spans thousands of years.

One of China's most impressive modern achievements is its high-speed rail network. Over the past few decades, China has transformed its transportation system by developing an extensive network of high-speed trains that crisscross the country. These trains, known for their exceptional speed, efficiency and comfort have revolutionized travel within China. The cutting-edge technologies and engineering prowess behind this innovation have allowed China to set new records for train speed and provide a reliable and environmentally friendly mode of transportation for millions of people.

China has emerged as a major player in the field of Artificial intelligence also known as AI, making significant advancements in both research and application. Chinese companies have developed cutting-edge AI technologies across various domains, including facial recognition, autonomous vehicles, and natural language processing. By harnessing the power of AI, China has revolutionized industries, improved efficiency and transformed the way people interact with technology. The country's commitment to AI research and development has positioned it at the forefront of this transformative technology.

China's legacy of innovation continues to thrive in the modern era, as evidenced by its remarkable inventions and technological advancements.

Technology

LKWFSL Wong Yiu Nam Primary School, Cheng, Pak Yu, 12

You may know that the four great inventions of China are compass, gunpowder, the art of printing and papermaking technology. But do you know the new four great inventions of China?

The term 'new four great inventions' is originated from a survey conducted by Beijing Foreign Studies University in 2017. This survey asked young people from 20 countries to list the technologies they will most like to bring back from China. Among respondents' answers, the highest vote-getters are high-speed rail, mobile payment, bike-sharing and e-commerce.

But in fact, China didn't invent any of these technologies, but China is leading the way on popularizing them. Like the high-speed rail, China have the world's largest high-speed rail network and aims to double it in 2030.

For example, the Jakarta-Bandung high-speed Railway have been put into operation, reducing the maximum travel time between the two places from more than three hours to forty minutes. This railway is designed by Chinese companies by using advanced technology, adapting to Indonesia's operating environment. It features advanced technology, safety and comfort. More importantly, it also features China's progress in recent years.

How will China's science and technology progress in the future? Let's wait and see!

New Tale of China's Inventions

LKWFSL Wong Yiu Nam Primary School, Chow, Chung – 11

The four big inventions of China have lived through the human history. They are Paper-making, Gunpowder, Compass and the Printing techniques, they can be called very big inventions that changed the world because they're unique abilities. But have you ever wondered what the inventions in China now are? Let's see what they are and how they can change the world.

Have you ever wondered what the inventions China will make in the future are? As in technology, America's technology is leading the world but I think that China's technology will overall surpass America because since the new China, year of 1949 China's technology have been very bad, but recent years under a series of policies led by the government, China successively mastered two bombs which is one satellite and hybrid rice technology in the 1960s and 1970s. China is also trying to figure out more technologies and join more international things to get China's status up, that's why I think America will be surpassed by China. Now let's see what the inventions from China does.

China have achieved many world leaders in aerospace, manned deep diving, drones, artificial intelligence, green energy, quantum communications, high-speed railways, resource exploration, automation, superconductivity, electronic technology, semiconductors, nuclear technology, lasers and other fields. So I will be talking about aerospace. China has achieved 'firsts' in aerospace much as the first Chinese to go on the moon and more.

I think there will be more and more technology that is better and will make the world even better, for example the railway highway or even flying cars in the future, just imagine cars flying in the sky and people wearing jetpacks to fly. I think China's invention in the future will change the world.

These can fix many problems in the world like trafficking and spaces between people. I doubt with the new inventions the world will be a better place.

About Compass

LKWFSL Wong Yiu Nam Primary School, Lam, Chung Yat – 11

Compass is an instrument identification range. According to historical records, the compass first appeared in the cisman area during the Wong States period. It was one of the great inventions in ancient China.

It was the result of Chinese working people's understanding of mastic objects in long-term practice. Under the action of majestic field.

This performance is usually used in navigation, geodesy, toy and military fields, and can determine the direction.

Before the invention of the compass, most people who sailed on the sea were guided by the position of the sun and the stars.

Compass is an instrument used to indicate direction in the early stage. During the Warn States pod, the Chinese discovered that the meat can be used to indicate the north and the south, and based on this, they made a kind of compass called compass.

The invention of compass has an epoch-influence on navigation creating a new era in the history of international navigation.

New Tales of China's Inventions---Gunpowder

LKWFSL Wong Yiu Nam Primary School, Ng, Ruoyu Jayden – 10

Everybody know gunpowder is the four great inventions in ancient. But do everybody know the origin of gunpowder? No. They don't know the origin of it. So, let me tell you the story.

Once upon a time, there was a zoo. There was a cow in the zoo. One day, the cow pooped a lot. Then, a visitor threw a stone at the cow's poop. After that, it exploded. This is the origin of gunpowder.

Gunpowder

LKWFSL Wong Yiu Nam Primary School, Wong, Man Fan Dominic, 10

There four most important inventions in Chinese history. They are papermaking, the compass, printing and gunpowder.

This time, I want to introduce how gunpowder was made.

A long long time ago, people needed to make medicine because some of them were ill. However, the pot kept exploding when people tried to make the medicine.

Meanwhile, World War One was coming. So, a man thought of something insane that it could make the world better. Using the medicine to fire the cannon's projectile.

When the man talked to the king, the king replied 'Good idea!'. In World War One, the soldiers fought the enemies with the medicine, not only did they won, but also they claimed many nations.

This is the story how gunpowder was made at all.

Cai Lun, the Chinese Inventor from the Past

Mui Wo School, Espada Custodio, Brando – 12

Cai Lun was born during the Eastern Han Dynasty and he was the creator of paper making process. Some people called him 'The God of Papermaking' or 'The God of Paper' and some of you may wonder who is Cai Lun? So, let's start from the beginning.

Cai Lun was born in 50 A.D.. He was raised in a poor family but years later after hard work and being smart he became a eunuch and served Zahng, the emperor of China.

One day, when he was sitting in front of his window, he saw bees making some mold and he had an amazing idea. He remembered how heavy the bamboo and wooden slips were and how hard it was to write on them, so he wanted to make something better, lighter and smoother. He gathered all the ingredients he needed. They were, mulberry leaves, fishnets and old rags. First, he washed the fishnets. Then, he mixed and boiled the leaves, shredded rugs and fishnets all together.

After that, he mashed it and made it flat. Finally, he let the mashed paste dry for a while. After the paste dried, he tested the new material by writing on it. After he tested it, he realized that it was much smoother, lighter and more convenient to use for taking notes on. After trying several times, he finally got an appointment with the emperor. He reported the wonderful news to him. The emperor was very happy with the new material and offered Cai Lun the title of a marquis. After he got the title, he became very rich and got one village to himself! He was very grateful and happy that his hard work turned into a success. Then a couple months went by, the Emperor called Cai Lun to a meeting and told him that some other nations learned about his new creation. One of the East Asia nation's took two Chinese soldiers hostage during some battle in Samarkand and they told them how to make paper. The news how to make paper spread around quickly.

Things did not go well for Cai Lun. He ended up in jail accused of plotting against the young emperor and drank poison taking his life. He was buried in his own village. A couple of centuries later, the Europeans made a papermaking machine.

Cai Lun, the Asian Inventor

Mui Wo School, Leung, Kwok Lap Tom – 11

Introduction

Cai Lun was an Asian who lived in ancient China a long time ago. In those days, people used heavy and thick bamboo sheets or clay tablets when writing things down. When Cai Lun saw it, he was inspired because it was hard to write on. He came up with an idea to make thinner and less heavy sheets. Before the paper was made, the Europeans and Africans used old pottery to write things on.

He worked out to use the tree bark, old fishing nets, mulberry leaves and old rags to make some kind of pulp. When he got the idea, he started to make the modern paper we used today. He made some people to help him to make more paper. He also asked his workers to help him write down the ingredients for record. He made a new batch of paper and he told the emperor about it.

The emperor showed appreciation for his work and gave him a village and lots of money and gold. After that, the papermaking quickly spread around the world. Even in Europe and Africa but half of this happened because of Zuo Bo. He was the helper of Cai Lun and he gave motivation to him. So, after that people used it for writing, sending letters, taking notes and drawing pictures.

The Process

This is how people made paper in ancient China. First, people cut bamboo. They soaked it, so it softens. After that, they boiled the bamboo to make mushy pulp. In the end, they pressed the pulp to remove the water and after that they left the paper to dry.

Cai Lun's Life

Cai Lun was born in 50 C.E.–60 C.E.. He lived in a poor family in China, in Guiyang. He might have had a brother. Therefore, when he was growing up, he often had no food and sometimes beg people for bread to support his family. After a few years, he got accepted and became a Chinese court official and worked under the emperor. He was not known by many people at that time, because he was a guy who often worked for the emperor and didn't appear much until he invented paper. He started to gain a huge amount of popularity and became well known as someone who invented paper. He inspired many people in other countries to use and try to make the paper the same way. Until this day, people know him as the man who invented paper. One day, around 50–120 C.E., he drank a glass of poison because he was framed for trying to murder the young emperor and could not take that stress.

The Great Chinese Inventor, Cai Lun

Mui Wo School, Salonga Esmejarda, Nathan – 11

Once upon a time, there was a Chinese inventor called, Cai Lun.

It all started in Luoyang, Han Empire when Cai Lun was a child and his family was very poor.

So, when Cai Lun grew up he wanted to become a eunuch,, an emperor's servant. He was very smart and always interested in machines and doing experiments. He also wanted to support his poor parents and worked hard to get to the palace.

One day, he was sitting in front of his window—watching bees making their hives. Suddenly, he thought of something brilliant! He thought of a very smooth and easy surface to write on, so people in the palace could finally write down important things easily. He wanted to invent something special but he needed a partner to do it. So, he got in touch with a man called, Zuo Bo. He did not know what materials to start with, so sitting down under the tree he kept thinking. Unexpectedly an apple fell down on his head.

So, he thought of bark and bamboo. He told his partner about his idea. Zuo Bo also thought of using hemp, old rags, mulberry leaves and fishing nets. They started experimenting...

First, they cut and moisturize the bamboo shoots. Then, they boiled the bamboo. Third, they cast the pulp. Finally, they pressed the water out of the pulp using big sheets of fabric. Lastly, they hang the sheets in the palace garden to dry them up. These experiments took them all eight years. They tried many times and failed but they never gave up and finally, one day they were able to present a new parchment to write on to the emperor. The emperor showed all the citizens and people liked it. However, many years later he committed a suicide because he got accused of trying to kill the young emperor. Cai Lun was a great inventor. I hope I can be like him one day.

A Chinese Inventor from the Past

Mui Wo School, Tierney, Daniel – 11

Nowadays, people ask who made paper. I will help you to solve this famous question.

Once upon a time in ancient China there was a person called, Cai Lun. He was born in 57 A.D.. He passed away in 121 A.D.. He was around 89 years old when he died. He lived during the Han Empire. After his invention, he was named 'the Father of the Paper Production'.

He was a lawyer and a Chinese eunuch from the Leiyang Guiyang Province. People in the old days used bamboo, wood and metal to write on. He saw many people struggling to carry the writing materials and it was so hard to write with. So he was thinking about how to make an easier way to write and to carry written things. He could afford buying writing materials because he was rich but he thought of the poor people who barely could afford to buy writing materials. Cai Lun had a lot of attempts to make paper, so every time he failed and he tried a lighter material. It took him eight years to find the perfect combination of ingredients. He was inspired from the things he saw in the forest. When watching the bees making their mold he thought that this material was light. He used anything he could find. He used a mix of mulberry leaves, fishnets and old rags.

He mashed up all the ingredients to make a paste. Then, he spread the wet paste and dried it in the sun. Finally, he tested it. It had to fulfill three conditions, like it needed to be light, easy to write on and not too expensive, so many people could afford it.

He showed the paper to the emperor. It was easy to convince him because he used to work for the emperor and he was famous for being smart. The emperor used it and thought it was a great invention. Cai Lun became very famous.

Some people travelled to China to learn how to make it. The papermaking slowly was taken to the East and Europe (e.g. Samarkand) Papermaking made it to the west very slowly because they did not have planes or cars like now and the news about papermaking was taken by merchants and travelers. It took many people to make paper but it was worth it. In the first fifty, after invention not many countries used paper. They used other materials.

In Asia, they used bamboo leaves and maybe even rocks to write on but in some other places like Africa, they used leather, a tree bark and before that they did cave painting. But up North in Europe, they were not so lucky because barely anything could grow. So, when the paper was introduced, it was very valuable. Everyone wanted this material. So, many countries fought for it. The invention of the paper is very useful in modern days. People use four hundred and seventeen million tons of paper every year. It is the same weight, as four hundred million elephants! In one day, we use many sheets of paper to write or to print on it. Most of the paper is used in education. I think, paper is still very important even today. We use more and more computers. In old days, like at war, (before the modern phones), people used to send letters to families and friends to let them know, they are alive and safe. I think, sending a letter shows more respect to the person you are sending it to, instead of texting because you put more effort in it.

Printing on paper is important for education and work. Besides, you can write on paper and use it as a currency. In ancient China, they used seashells for payments. It is easy to carry paper than shells or gold.

Finally, I want to reflect on Cai Lun's personal life. It was all a fairy tale for him. There were 'ups and downs'. He worked hard for his success but it was not always good. He was famous for his invention; no one knew what he felt. He was always in danger at the emperor's court and eventually got framed for plotting to kill the young emperor. He was innocent but he took his own life. From Cai Lun, I learn not to give up. With hard work I believe, I can succeed.

The Unexpected Invention of Gunpowder

Po Leung Kuk Choi Kai Yau School, Wong, Trevor CY – 10

Nowadays, bombs and explosive weapons are very commonly used in modern military warfare, but these dangerous killing machines were once just simple cannons that were first used in the Battle of Ain Jalut in 1260. But before that, there were no guns, deadly killing machines, and not even cannons existed until the 10th century. However, during the late Tang Dynasty in the 9th century, the Chinese invented gunpowder. You may ask yourself, "How does gunpowder relate to deadly killing machines, guns, and even cannons?" Well, you see, gunpowder is a substance that explodes when it comes in contact with fire. It can create so much force when concentrated in an area that it can shoot a heavy metal ball out, and that is how the basic cannon works. But let's stop talking about cannons and start talking about gunpowder. As it turns out, the invention of gunpowder was actually an accident. The Chinese people believed in the concept of immortality, and some monks were trying to create a life-extending elixir, but they accidentally invented gunpowder. You may ask yourself, "How could the monks create gunpowder when it is completely different from a life-extending elixir (a medicine)?" Gunpowder mainly consists of sulfur, but it also contains charcoal and saltpeter. Sulfur was a main ingredient for many medicines back then. They made gunpowder by burning the ingredients and then mixing them up.

After accidentally making gunpowder, the Chinese found it useful and created fireworks using it. These decorations flew up in the sky and made the area so bright that you might think it is morning if you watched during the night. China was pleased with their invention, but soon they found a better use for it. In the 10th century, Emperor Song's military invented the cannon. It had a long metal tube, and some gunpowder was placed behind a metal ball in the cannon. When you lit the fuse, the gunpowder came into contact with the fire, creating a quick expanding gas that pushed the metal ball at high speeds, making it very deadly. From the 11th to the 13th century, the Chinese continued to create more weapons. However, they often only created early versions of these weapons and didn't improve them much. For example, they created an early stage of a gun by using bamboo, gunpowder, and arrows (these early versions of the gun shot arrows, not bullets). Fortunately, other countries stepped in and helped to improve them, slowly developing into the iconic guns, rocket launchers, tanks, and other deadly killing machines we know today.

Water Driven Astronomical Clock Tower

Po On Commercial Association Wan Ho Kan Primary School, Asif, Ayan – 10

China had invented numerous amazing and record-breaking thing. To name a few, papermaking, compass, gunpowder, paper money etc...

Among all the breath-taking inventions, I'm going to write about the incredible device called "Astronomical Clock Tower".

The Astronomical Clock Tower was invented back in the 11th Century during Song Dynasty. It was invented by Su Song who was the Chinese Polymathic Scientist and statesman. He was a very talented and God gifted knowledgeable person. At the age of 70, he applied the most advanced knowledge in astronomy and technology to construct never made or thought before "Water Driven Astronomical Clock Tower".

The Astronomical Clock Tower was 12 meters tall and 7 meters wide. The structure of clock tower was made of wood while armillary sphere and the celestial globe were made of bronze. It offers functions of astronomical observation, time measurement and time keeping. The clock tower was operated by hydropower. If you wonder what hydropower is? It is electricity power generated from turbines that convert the potential energy of moving water into mechanical energy.

The era back in 1000 BC benefited hugely from this creation as without it, people used to rely on the direction of water, sun or stars.

After successfully inventing the clock tower, people start using the invention as it helps to show the accurate time, date, celestial bodies and timing movements.

I myself is very astonished to know that people centuries ago who were less educated and had no luxury to technology and many other things were so much blessed with talent that they made such a miraculous and matchless invention which is been used for many generations it has definitely made everyone's life easier.

I'm very impressed and inspired by the self-confidence and belief of Su Song who did not give up on his itch of creating new things for society even at the age of 70 when people mostly retired and don't prefer doing anything.

I hope one day in the future I can also invent something to make my nation and parents proud of me.

New Tales of China's Inventions

Po On Commercial Association Wan Ho Kan Primary School, Kaur, Nimrat – 11

China have recently invented some useful things that can change our lifestyle example high speed rail, E-commerce, Mobile payment, Bike sharing and references some people don't know about these Inventions today I am going to explain each of them. High speed rail is a kind of train but its different than traditional trains. It's more faster more comfortable to seat. Some people think that high speed rails are better than planes because plane ticket are way more expensive than high speed rails. It took six years to build high speed rail in china. China have spend nearly \$370 billion dollars on high speed rail. China build high speed rail very fast now? because china initially relied on high – speed technology imported from Europe and Japan to establish it's network. China have worked hard on it so it succeed. nearly 1 billion people use high-speed rail in china. My opinion is high speed rail is a good way to travel. But why do people high speed rail better than trains because it's always on time and no delays. China have the fastest high-speed-rails. More people in hong kong are from China so it's easy for them to travel. If people use bus, taxi, tram, etc to travel China that will be hard because of traffic. What is E-commerce ? Do you know it? China import and export their goods to other countries. that means China Buys good and sells good to other country China has the world largest E-commerce Market. China grew E-commerce really fast. China use I mall for ecommerce. E-commerce Market in the world money of 1.94 trillion dollar do you know why E-commerce so popular in China because a lack of retail infrastructure in lower tier cities do you know how big it is it's near about trillions dollar. The largest e-commerce is Alibaba in China. Alibabab is the largest market in china. Do you know when did China made e commerce? They started in 1997. China growth ecommerce because proliferation instant payment tools and advanced network infrastructure construction. do you know advantage of ecommerce cheap price and fast delivery. For my opinion ecommerce is a good business and shop. Do you why e-commerce is so popular in China because china have the largest ecommerce market in the world. Near about 900 million people use ecommerce in china. I think the future of ecommerce will be a very good future. Do you know how ecommerce the mos. Its not China but its usa. There are many ecommerce apps in China near about 80. because people in love shop and have business. Do you what is e commerce in Chinese its Do you know what is mobile sharing ? Let's talk about mobile payment. When we do online shipping. We use mobile payment example we order some thing Taobao we use Alipay or credit card for paying money for things. We can use mobile payment for paying bills. China have 2 mobile payment apps Alipay and wechat. The most popular payment method are alipay, WeChat and Unionpay. more than million people use mobile payment. What do you think is mobile payment safe? Yes it's safe. If you have mobile payment you can just go out with your phone only you don't need to carry many things like bag. Money. When some tourist come to china that will be easy for them to pay money if they didn't exchange money. If you don't know Chinese numbers you use Alipay for paying. Some people don't know how put money in you Alipay. So first you need to have account. Then you need go to 7-11 for transfer money in it. Do you know how many people use mobile payment in China? Near about 800 million people. In now days most of schools use mobile payment. It's safe to do mobile payment because some times we forgot our personal things like laptop, money, cards. Then we can use our phone to block account. for my opinion Mobile payment is a good way to keep your things safe. And we won't be worried if we lost our things like our bank card and other documents. Do you know what is bike sharing in china. Bike sharing is a cycle but you rent for minutes or hours. It costs 1.5 yuan per 15 minutes. almost 15million people use bike-sharing. There are 350 million bikes in china. Some people don't really use them because their bit dirty. Chinese people love to ride bikes because they think that riding-bikes is healthy. Do you know when did China start bike sharing. Some people use it for playing. You know China's bike sharing market is the largest in the world. We can also use Alipay for pay for bike sharing. China have did really Do you know what is custom computing in China? Ok lets talk about it. Do you what fastest quatum computer it's Jinzhang quatum computer series. The latest model is

Jiazhang 0.3. Do you know the companies. Qudoor, hawei cloud, Quasky and many more. Do you how fast it is a million in of a second. For opion it's very good think The leading of quatum computing is IBM. I think teachnology of china is so fast and safe. China have invented many think. We should be thank you to them to give as good Technology.We should Thank you the All the country. thank you everyone. if government gave us the things we need so we need to take cae the things.like bike sharing we shouldn't make dirty or make it smell bad. We should be thankful to china because they made high speed rail because they know some people don't have tht much money.so they can't go to china. And the best they don't make any delay.China made mobile payment to help tourist. These were some thins that everyone should know. Government spend millions of dollars on these thing. Thank you everyone for reading my Explainiu.again thank you to China.

New Tales of China's Inventions

Po On Commercial Association Wan Ho Kan Primary School, Leung, Darren – 11

China is a great country with a long history and rich culture. In recent years, China has made many important inventions. One of the latest inventions is the high-speed maglev train.

The high-speed maglev train is a transportation n technology, that uses magnetic levitation to float the train above the tracks. This allows the train to travel at very high speeds, up to 600kilometers per hour ! The high-speed mglev is much faster then others traditional trains and even faster than some plane.

The high-speed maglev train isn't only fast, the high-speed magleve train is also very safe, why it's more secure than others traditional trains ? Because the high-speed maglev uses the most advanced magnetic levitation technology and control systems to ensure the stability and safety of the train.

The high-speed maglev train is an important invention of China, the high-speed maglev is Chinese people's brainchild! The high-speed magleve train makes Chinese people travel more convenient.

I think that in the future, more and more Chinese inventions will make us lives be better and better !

New Tales of China's Inventions

Po On Commercial Association Wan Ho Kan Primary School, Moustafa, Tabarak – 10

A long time ago in china, some really incredible things were invented. They are so great that they changed the world so let's learn about some inventions form ancient China. That have made our lives more convenient and better.

1. Tea: Did you know tea was invented by accident? Five thousand years ago. Someone was boiling a pot of water till some leaves fell into boiling water. He found the taste enjoyable. People loved it so much that it became really popular. Thanks to this invention!

Tea is made form leaves called *Camellia sinensis*. There are different types of tea, like green tea, Black tea and oolong tea. Each type has a unique taste and aroma. Tea is not only delicious; it also has heath benefits. It can help you relax, give you energy and even portect you form some diseases. So if you are making tea, remember it started form china.

2. Silk: Silk is a super soft and shiny fabric that is really nice paper to feel. It ws frist made in China many years ago. A woman discover that she could get silk thread form cocoons of silkworms. She used these theardsto make beautiful clothing and other stuff. Because of nice look and soft texture so it. Because so famous that everyone wants to have.

The process of making silk is called sericulture. It involves raising silkworms, feed them mulberry leaves and carefully unraveling their cocoons to obtain the silk threads. Silk is considered a luxurious fabric because of soft tecture and beautiful appearance. It was highly valued and often used to make clothing for emperors and nobles. Silk production was a important industry in ancient china. It even tot them wealth and prestige to the country. So if you are buying silk clothing remember it started form ancient china.

3. Kite: Have you ever flew a kits? Well, kites were invented in China in the fifth century B.B. They were used for different thing such as spying on enemy, sending signals in the military and measuring distances. It became a children toy during the Fang Dynasty. They were flat and rectangular resemy brids while other design were lengendary Chinese figures. Nowadays kits come in different shapes, colors and sizes.

The origins of kites can betraced back more in 2000 years ago to ancient china, kite were initially used for military purposes, such as signaling and measuring distances. They were also for gauging. The wind, scientific experiments and artistic performances. It wasn't long before people started to use it for playing for fun and enjoyment. Kite are made form light weight material such as bamboo, silk and string. They came in different shape, size and clolors nowadays so if want to fly a kite go china. Weifan there are kite museum and internation kite festivel and competition.

4. Umbrella: When it is hot or sunny or rainy outside, what will you use? You use an umbrella to keep the sun of you or the rain of you. But guess what ? Umbrella was invented in ancient China 3500 b.B ! People used to make umbrella with leaves and feathers to protect themselves form the sun. Eventually, they stared using silk and ailed paper to make them waterproof. Umbrella became really handy in the middle of

the seventeenth Century and till Today they handy important, fashionable.

The umbrella has a long history in China, Date back more than 2000 years. It was initially designed of partect them form sun light but over the year they were made to portect us form rain as well. The Frame were made form bamboo and other flexible material, while covering were carfted by various materials such leave, silk, oiled paper. The umbrealla became a symbol of status and fashion,. It popularity speard beyond to every part of the world Today everyone have a umbrellar.

5. Paper: Can you imagine a world without paper? Well before paper was invented. Chinese people in the past used bones, bamboo unlike us. Nowadays the paper is so important that everybody ahs it. But China invented the paper form plant, like bamboo fibre, mulberry bark and hemp. Paper was much lighter and easier to to write or draw on. Soon it became famous because it easier to carry and it's very cheap. Now everyone is using the paper to draw and write.

The invention of paper credited to Cai Lun an official in the Han Dynasty. He discovered that by pounding Bamboo fibre: mix them with water, then dry the mixture, a thin, foldable and flexible material could be created. This material was paper. Paper revolutionized communication and record- keeping. It replace heave material such as bamboo, bones and silk scrolls, Making writing more convenient and better.

China has invented many stuff witch are convenient to us nowadays. Will china make new invention? Or will be on Mars ? lets fine out in he futur .

China's Impressive Paperwork

Pui Ching Primary School, Wang, Tsz Ki Bella – 11

Before I start, I have a few questions to ask you. What device are you using to read my article? Is it a phone, a laptop, or are you reading a printed copy? And when it comes to drawing, are you using an iPad or good old-fashioned paper? Would it surprise you if I told you that something you see every day actually came from China? I'm referring to paper! Yes, that includes toilet paper too.

There is no doubt that paper has become an essential part of our lives. We use it for writing, wrapping, and countless other daily things. However, the question remains: how well do we truly know and understand the value of paper?

Let's start with its history, shall we? Paper was originally invented in Egypt, by pressing papyrus stems together. However, the earliest form of paper as we know it, made up of a mesh of randomly arranged plant fibers, was invented between 200 B.C. and 220 A.D. in China during the Han Dynasty by Ts'ai Lun. After the invention of paper, a lot of things happened. During the Tang Dynasty (618–907), paper was folded into square bags to preserve the flavor of tea. The subsequent Song Dynasty (960 –1279) was the first government to issue paper money. At that moment, paper was swiftly applied for diverse usages, which made people's lives easier. Shouldn't we praise ancient Chinese wisdom?

What's more, may I bring your attention to how such a tiny and light thing has influenced our world? Papermaking facilitated a flourishing in literary creativity and written culture, which included works on geography, astronomy, medicine, and mathematics. The aforementioned examples well illustrated how paper led to a rise in popular literature being inexpensively copied and more accessible to the general public. More significantly, paper played an indispensable role in knowledge dissemination at that time. It also led to the creation of newspapers, periodicals, magazines, and books to share knowledge. Meanwhile, it was beneficial to allow more communication among people through letters.

Wow, that was a lot to say. Isn't it fascinating that a sheet of paper could impact the world so much? I wonder what China will invent in the future?

Well, let's wait to find out!

Amazing Inventions of China's Technology

S.K.H. St. Peter's Primary School, Lam, Chung Hong – 9

Last week, my father suggested going on a vacation in Shanghai during summer holiday when he knew that I got the highest marks in my Math exams. My eyes glittered with tears of joy because I had never been to China before. We planned to go there by plane because it is faster though more expensive than high-speed rail.

On the first day, my parents and I arrived at the airport early. I saw the airport was packed with passengers so we dashed towards the check-in counter to check in our luggage. After a while, we got on the plane. I found there were many in-flight entertainments such as a full selection of TV series and the latest films and video games for me to select while I was on board. It was great fun to me.

The flight took around three hours from Hong Kong International Airport to Shanghai Pudong International Airport (PVG). After we had lunch, I saw one of the articles from the flight magazine about the Maglev train museum in Shanghai. It was opened on 16 August 2007. 'Can I go to the train museum tomorrow as it displays many old models of the Shanghai maglev train?' I asked. 'Yes, you can,' my father replied. Then, 'How fast is the Maglev train?' I enquired. Dad told me that China's new maglev train was designed to reach the speeds of 600 kilometers per hour. The high-speed rail aims at connecting more large cities by train in order to reduce the time and expenses required to travel around the world's most populous country. This was the first Maglev line in China and the first and the fastest operational commercial Maglev Train in the world.'

'How is magnetic levitation used for transportation?' I enquired. 'Maglev is a system of train transportation that uses two sets of electromagnets: one set to repel and push the train up off the track, and another set to move the elevated train ahead, taking advantage of the lack of friction,' my father explained patiently. 'Can I take the maglev train from PVG airport to the hotel,' I requested. He nodded with a big smile.

After three hours of flight, the aircraft landed at PVG around one o'clock in the afternoon. My heart began to pound when I was exhilarating to ride on the Shanghai Maglev from the airport to the central station. The journey lasted for around seven minutes, and I could not believe the speed displayed on the monitor peaked at an impressive 301 kilometers per hour. It was really fast.

On the second day, one of my father's colleagues, John, who worked in Shanghai Commercial Aircraft Corporation (COMAC) met up with us. He invited us to visit a hangar near the PVG after we had a scrumptious meal in the Chinese restaurant. When we got in the hangar, I saw different models of aircraft in the spacious hangar. It was amazing. I also spotted that the C919 aircraft was installing the landing gear (LG) by mechanics. I knew that the C919 was the first plane produced by a Chinese manufacturer, Commercial Aircraft Corporation (COMAC). My father told me that the C919 represented an important step in China's economy moving beyond low-cost manufacturing. The C919 is more fuel efficient than the latest than the Airbus A321 aircraft and Boeing B737 aircraft when flying. The design team of COMAC adopted a large number of advanced designs to save fuel consumption and technologies to make it more cost-friendly.

'Can we turn sand into a giant battery in the future?' I asked John politely. 'This may happen in future. Sand heated up by using wind and solar energy and the heat can be distributed by a local energy company to provide warmth to buildings in nearby areas. Energy can be stored this way for long periods of time. All of this occurs through a concept known as resistive heating. This is where a material is heated by the friction of electrical currents. Sand and any other non-super conductor are warmed by the electricity passing through them. It then generates heat which can be used for energy.'

On the third day, John showed us to several visiting spots. I like the glamorous Oriental Pearl TV Tower, which was the sixth tallest tower in the world and the second tallest television in China. We watched the stunning sunset and enjoyed the breath-taking night view of Shanghai from the observation deck. I was completely mesmerized by the night view before me. I snapped many photos of the historic buildings with my powerful camera. At night, we went to a famous Chinese restaurant near the Oriental Pearl Tower. We tried many of the signature dishes. The dumplings were juicier than those in Taiwan. I really enjoyed the delectable meal and spectacular views at the same time. I think it was one of the best meals I have ever had.

I woke up and looked at the clock drowsily on my last day of my vacation. I felt puzzled because the clock was not ringing. 'It's getting late! Wake up, everyone!' I shouted frantically. It was already 10 o'clock. My mother's heart sank and she jumped out of her skin when she realized that we had overslept and missed the flight. A few moments later, my father had a brilliant idea. He told us to grab our luggage and dashed out of the hotel immediately. First, we took a taxi to the Longyang Road train station. Then, we took the high-speed train at Shanghai train station to go back to Hong Kong.

On our way home, I was exhausted but satisfied. It was an unforgettable trip in Shanghai. Although we missed the flight, we all enjoyed ourselves. I was glad to go home by high-speed rail with comfortable seats and big windows. In addition, the best news is: I am going to Beijing in my trip next year!

New Tales of China's Invention: All Terrain Automatic Planter

S.K.H. St. Peter's Primary School, Wong, Jing Nam Jovi – 9

Lately, I have seen the once—azure sky getting murkier and murkier. It seemed as though a giant shadow was slowly spreading across the Earth. Actually, the cause of it is that the air particles that mostly reflect blue light, making it blue, now reflect more grey, making the sky greyer than before. Air pollution is a serious problem and I am going to design a new invention by the name of A.T.A.P. (All Terrain Automatic Planter).

The machine has three parts. The front is a scarlet trapezium with two pipes to blow out smoke. There are also four emerald green walls. On the inside, three are solar panels, and one is for carrying peacock blue drones. There is a plum floor with pots and pots of seeds. On one of the side walls, there are the two big words "Awesome Planters" in magenta. It can also detach its front and put the walls down.

There are about twenty drones in the truck, and they have three jobs to do. The first one is to dig the soil. They have a robot arm attached with shovels to do this job. Next, they go to the truck, pick up some seeds and put them into the seed shooter to put them into holes. Lastly, they put back the soil. They work like the first ones, but instead of taking away the soil, it puts the soil back. These jobs will be too slow if they are done by people, so they are run by an A.I. (Artificial intelligence).

Not only do trees take dust out of the air, they also suck out CO₂, which is a greenhouse gas that makes the planet hotter. Therefore, by planting, it solves the problem of global warming, making the world a better place. It can plant vegetables instead of trees too!

I imagine that people will not work in dusty and packed environments anymore with this design. The sky would be azure once again. They would also breathe more fresh air, which will make them more relaxed. I hope we Chinese can have more great inventions for the benefits of mankind.

The Tale of Optical Fibre

S.K.H. St. Peter's Primary School, Wong, Sheung Yau – 9

'Optical fibre' is a familiar term to us because it is one of the greatest contemporary inventions. Our lives, including studying, playing games, and communicating with others, are closely tied to the Internet.

Optical fibre is made of either glass or plastic, with a thin glass core surrounded by a layer of material with a lower refractive index, such as nylon. From the outside, it appears as a transparent glass thread as thin as a strand of hair.

Optical fibre was invented by a brilliant Chinese scientist Dr. Charles Kao in 1960s. He wanted to find a better way for people to communicate over long distances while people used copper wires with lots of limitations at that time. Dr. Kao believed that light could provide a better solution.

He started doing many experiments with light and different materials and discovered that glass fibres could carry light signals very well over long distances. At the beginning, not everyone believed in Dr. Kao's idea and some people even thought it was impossible. However, Dr. Kao didn't give up. He kept working hard and doing more experiments to prove his idea could work. With the help of another scientist Dr. Robert Maurer and the years of hard work, they finally had a significant breakthrough in 1970. They made a glass fibre that could carry light signals with very little loss. This meant that information could travel long distances without losing its quality.

Their invention changed the world. Optical fibre networks started expanding rapidly across the globe, connecting people in ways never seen before. Suddenly, it became possible to send messages, make phone calls, and share information instantly, no matter how far apart from each other.

The discovery of optical fibre revolutionized the world. In recognition of his remarkable contributions, Dr. Charles Kao was awarded the Nobel Prize in Physics in 2009. And he earned the title of the father of fibre optics from then on.

Optical fibres are widely used by telecommunications companies to transmit telephone signals, internet signals and cable television signals. The fibre-based communication system has a significantly large bandwidth, fewer chances of signal degradation, provides high data security and is comparatively cost-effective. Optical fibres are also used in manufacturing various medical equipment. For examples, gastroscopes and colonoscopes enable doctors to observe the internal organs of patients clearly and reduce the pain caused by the harmful surgeries. In addition, optical fibre can be used for research applications in the microbiology and biomedical applications. Optical fibres are applied in military as well. They are used for establishing a shared channel among stations to exchange information and other purposes like anti-helicopters, anti-tanks... Besides, optical fibres can be also used for space development, such as satellite communications, remote sensing, high-power laser systems, multispectral and hyperspectral imaging, etc., rely on optical fibres for their operations.

It is very difficult to imagine if we live without this amazing technology. Therefore, the next time, when you browse the Internet or make a phone call, remember the tale of Dr. Kao and his extraordinary invention. It shows us that anyone can make a big difference in the world with hard work, perseverance and a little bit of imagination.

The Astonishing C919 – China soars in the skies

Shanghai Singapore International School, Bose, Aditya Nath – 10

“The ultimate dream is to fly, and to fly without limits.” With this ambition, China created its mark of innovation in aviation history with the launch of the COMAC C919 airplanes.

The C919 was built by a company in China called COMAC, which is located in Shanghai. Their goal was to manufacture airplanes locally, instead of only depending Boeing and Airbus.

The C919 is a truly special airplane, it is a symbol of progress and innovation. It shows how far China has come in the field of technology and aviation. Building this plane took many years of hard work, research, and teamwork. A lot of people were involved in this project, including engineers, designers, and pilots. It's a big achievement for everyone who worked on it.

The C919 is not the largest plane in the world, but it can carry over 100 people. Think of it like a big flying bus that can take a whole bunch of people on a long journey. Inside, it has enough seats for 158 to 192 people.

This plane can travel distances, too. It can go for distances between 4,075 km and 5,555 km without needing to refuel. That's like flying from one side of a big country to the other side and even further! It has a wingspan of 35.8 meters. That's how long the wings are from one end to the other. The whole plane is 38.9 meters long, and the tail part, which sticks up at the back, is about 12 meters high. The C919 stands tall at a height of 11.95 meters.

The engines of the C919 are made by a company called CFM International. These engines are super. The tires of the plane are made by Michelin, a very famous company that makes tires for all sorts of vehicles. These tires are really important, especially when the plane lands on the ground.

The C919 is mostly made of a special metal called aluminum alloy. This metal is chosen because it's strong enough to hold the plane together but also light enough to help it fly. They built this amazing plane in Shanghai, and they use a lot of smart technology to make sure everything is just right.

One of the coolest things about the C919 is how it's flown. It uses a system called fly-by-wire. This means that the pilots use electronic controls to fly the plane, which is very modern and advanced. The plane is also designed to save fuel. This is really important because using less fuel is better for the environment. Less fuel means less pollution in the air.

The wings of the C919 are designed in a very smart way. They're called supercritical wings, and they help the plane fly more efficiently. This means the plane can go faster and use less fuel, which is really good for saving energy. The design of the wings reduces something called drag, which is the air resistance that can slow down the plane. With less drag, the plane can fly smoother and faster. It can also fly very high, up to 12,100 meters in the sky. That's even higher than the tallest mountains!

The C919 is built to be very safe. It can handle all sorts of weather and flying conditions. The cockpit, where the pilots sit, is equipped with lots of advanced equipment. This equipment helps the pilots know exactly how to fly the plane and keep everything safe and under control.

There are different types of the C919 for different needs. Some versions of the plane are made for carrying cargo. This means they can move goods and products all around the world. Other versions can be used as flying hospitals. These planes have medical equipment inside and can be used to help sick people in emergencies.

Painting the C919 is a big job that requires a lot of care. It takes about 10–15 days to paint one plane. Each plane can be painted in different colors and designs, depending on what the airlines want. This is why you see planes with different pictures or logos on them. It's all part of how they're painted.

The inside of the C919, where all the passengers sit, is also very special. The cabin is designed to be comfortable and spacious. There's enough room for everyone to sit comfortably, and there's space for luggage too. The seats can be adjusted, so passengers can relax during their flight. The lighting inside the cabin can change colors and brightness, which can make the flight more comfortable, especially if it's a long one. The windows in the C919 are large, so passengers can look out and see the beautiful sky and clouds.

Did you know! Each C919 costs about \$ 99 million (in comparison to the A320neo at \$111 million and the 737 MAX 8 at \$121 million)

Some more interesting facts:

The C919 took almost 15 years in the making.

On May 5, 2017 the C919 made its successful maiden flight .

On 29th of September, 2022, the C919 received its CAAC certificate.

You won't believe the orders the C919 has got! Totally over 600 orders from big airlines like Air China, China Eastern, China Southern and Sichuan Airlines. Some international orders have also started coming in like Brunei's Gallop Air.

In conclusion, the C919 is an amazing piece of technology. It's big, can fly far and high, and has a lot of impressive features. It's made with advanced technology and is designed to be safe and environmentally friendly. The C919 can be used for different purposes, like carrying cargo or serving as a flying hospital. It's a big step forward in aviation and shows how much can be achieved when people work together to create something new and exciting. The C919 is more than just an airplane; it shows progress and is a source of pride. It makes us think about how incredible flying can be and how it connects people and places all around the world.

Hong Kong – Zhuhai – Macao –Mega Structural Bridge

Shanghai Singapore International School, Chabbi, Pranavi Mayur – 11

Can we think of a situation where there were no bridges and people had only boats and barges to cross rivers and oceans? It would affect the commuting of people. China is a pioneer in bridge construction; in fact, there are records of bridges built by Chinese emperors dating back to the 12th century. These bridges were built across the rivers in mainland China, which demonstrates the outstanding skill of Chinese people.

My father recently narrated to me his experience of crossing a unique bridge called Hong Kong – Zhuhai – Macao bridge (HZM bridge for short). I was fascinated by his narration of the bridge, and hence started researching more about this on various platforms, especially on the internet. The Hong Kong–Zhuhai–Macao bridge is the longest cross–sea bridge in the world. It is situated in the southernmost part of China, connecting various parts of the Pearl River delta. Before the HZM bridge was built, it used to take about four hours by road to travel from Hong Kong to Macau, covering a distance of 200 kilometres. With the construction of HZM bridge, the travel time is reduced to only 40 minutes. The bridge has transformed local trade, business, and tourism. The HZM bridge is an icon, demonstrating the capability and expertise of the modern engineering in China. When I was watching a documentary, I was wonderstruck by the continuous improvement of skill and technology of Chinese engineers over several decades.

The HZM bridge was conceptualised in 1983. Engineers spent years, planning, designing, and implementing this project. The construction work began in 2009 and took about nine years to complete. The bridge is designed to last for 120 years, and nowhere in the world bridges are designed for such a long life. This bridge can withstand typhoons, earthquakes, and fires of very high intensity.

This mega structure is an engineering marvel where many unique and novel construction technologies have been used. The structure is 55 km long from start to end; it consists of three parts: a steel bridge spanning 23.9 km, four man–made islands, and a sea tunnel of 6.7 km. The steel spans are above the sea; the tunnels are underwater, and the islands serve as transitions from over the sea to under the sea. Below, we will explore the different aspects of this remarkable bridge.

The steel bridge:

Generally, long bridges are made by joining several smaller segments, each segment standing on pillars. For the HZM bridge, however, the longest span is 460 metres, and each segment is made entirely from steel instead of concrete. Steel makes the structure lighter and easier to build. The engineers built the steel from a special quality alloy to protect it from rusting. Long spans of the steel structure allow large ships to sail freely under the bridge. The documentary helped me to understand how strong pillars are built on the ocean bed.

Man-made Islands:

Despite the long steel spans, there are limits to its length. This Pearl River Estuary has very busy ship traffic; almost 5000 ships cross this area of the sea each day. In order to facilitate the movement of ships, the engineers came up with a brilliant solution to submerge parts of the bridge under the sea as a tunnel. Two artificial islands, covering an area of 200,00 square metres helped to create smooth transition between bridge sections and tunnel.

Engineers drilled large, long steel cylinders into the seabed to create artificial islands, which expedited the construction. I can recollect many airports are built on a reclaimed land near to the mainland, but building islands in the middle of the sea to connect the parts of the bridge is incredible.

Underwater tunnel:

The tunnel is 40 metres below the sea level. Constructing the underwater tunnel was challenging because of the deep-water undercurrents and unpredictable tides. Engineers used special technology to drill the tunnel. 13 heavy-duty ships and 300 skilled workmen moved segments under the sea. In fact, one worker said it was like playing chess with people, equipment, and ships. Most of the workmen used to stay on ships and didn't visit their homes for years. Such hard work and commitment of engineers made this project successful. I was spellbound by divers' dedication who regularly went underwater to check the quality of construction.

The project was carried out on four principles: scale, factory production, standardisation, and assembly. The quantity of steel plates used is equivalent of 60 Eiffel Towers, and the quantity of concrete used is equivalent to eight Burj Khalifa's. Large factory space was built for manufacturing all of the segments using special robots. These steps ensured meeting modern standards and avoiding human error in construction. In the year 2021, I had visited the Silk Road in China and visited many monuments built by Chinese emperors. If I compare modern bridges with old monuments, one thing that remains in common is the spirit, bravery, and perseverance of Chinese people.

Safety was the highest priority in the bridge construction. The bridge was built to sustain fire hazards and traffic collisions. The engineers and marine biologists paid utmost attention to protect the environment. This reduced the disturbance to the 2000 white dolphins in that area. High-capacity barges were used during the bridge construction. Yet, another feature of this construction is the use of local technology, resources, manpower, and equipment.

The HMZ bridge is a testimony of modern engineering and the pride of the nation. This bridge is not just a physical link between various places, but is a connection between people and culture. The HMK bridge demonstrates the exceptional feat a nation can achieve with teamwork, sacrifice, and commitment of its people. I am truly inspired by this engineering marvel, and I would love to soon travel on this bridge.

Invention of paper

Shanghai Singapore International School, Joshi, Viaan – 11

Paper was first invented in China in AD 105. Made by a court official Ts' ai Lun from Lei Yang. He became famous after his creation of paper, after a man's hard work, he was able to make a virtuoso material, named paper. Let's dive in to understand what paper really is.

Ts'ai was tired writing on polished animal bones or bamboo, because it was very heavy. Many ancient Chinese were using polished animal bone to send messages to others. But it was a pain for messengers to deliver these messages because either the bone is heavy or way too big. Ts'ai had been wondering how to encounter this problem to benefit his Eastern Han Dynasty. His innovative mind had soon come up with solution. He used hemp, rag, water, mulberry bark, other tree barks, and he mashed into a Liquid. Ts'ai then placed the liquid under the sun, and success! Paper was originated! Paper popularity quickly increased, because it had a light, flexible material to it. The Koreans had adapted to this material paper quickly after the Chinese. They had their own methods of making paper. They used rice straw and bamboo to strengthen the fiber in the paper. Paper was used in every territory. It had reached central Asia in 751 ad.

Before 1798, Nicholas louis Robert founded the first ever paper machine. Using a moving screen belt, paper was made one sheet at a time. It was dipped in Ts'ai's former formula of his pulp, and paper was made in his machine. Many inventors improvised Nicholas's invention, and soon, John Dickinson invented the first cylinder machine to create paper. Nowadays, we use paper mills are used to make paper.

Due to mass producing of paper, many factories use non-renewable gases to quicken the process of making paper. They release harmful gases like carbon dioxide, carbon monoxide, sulfur dioxide, nitric oxide, nitrogen dioxide etc. These atoms have a consequence globally: air pollution and global warming. Making paper

also needs wood. Cutting down a colossal amount of trees to obtain paper can lead to deforestation, then it will disrupt the food chain when animals slowly get extinct due to no presence of trees, and it will lead to mankind extinction.

In conclusion, we have been able to make a wonderful material named Paper, and we have discussed the righteous and sinful of paper, and I hope we can make paper in a eco-friendly way. Start taking action now!

The Earthquake Detector

Shanghai Singapore International School, Krishna, Rohan – 10

During the Eastern Han Dynasty, there was a man named Zhang Heng invented the first Earthquake detector. This invention helped decrease the number of people passing away in China from earthquakes. People now only know only a few inventions that ancient China made such as the compasses and papers. But many are still unknown to us. One of them is the first seismograph (earthquake detector).

About Zhang Heng

Zhang Heng was from China, he was also a mathematician, astronomer and a geographer. He was born on 78 A.D in Nan-yang, China during the Eastern Han Dynasty. He died on 139 A.D. He published books and short stories to first gain fame, then he invented the seismograph which got him even more famous. Zhang Heng also lived in isolation for some time to think about the universe and other scientific things.

The Seismograph

After some of his great inventions like a water-powered artillery sphere and a water tank. He made the seismograph. The seismograph was made out of bronze and was oval shaped. The seismograph also had 8 dragon heads that stick out of a big bronze container to represent the 8 directions. Each dragon head was faced downwards and held a small ball in its mouth. Below the heads, were 8 frogs with their mouths open. Whenever an earthquake was nearby, the dragon that is in that direction will drop the ball into the frogs mouth which will create a noise and alert people Scientists don't know how the ball drops but they do now that it was quite accurate.

Zhang Heng didn't work for the imperial court, but he created many inventions that are still useful today. Although people have made improvements to it, we should not forget the root of all of these inventions and cherish them because they improved our lives.

The History of Tea — a World Changer

Shanghai Singapore International School, Qian, Jia Tong Dilys – 11

Tea is one of the earliest drinks in the world; today, it has been put in all kinds of popular beverages. Everywhere in the world, there are many different types of tea with various flavors and diverse looks. Now many teenagers and young adults are addicted to it, especially in China, where tea was invented. In fact, throughout history tea has changed the world for several times.

Tea has a long history. Accidentally found by the Chinese emperor Shen Nong in 2737 BC, tea was firstly recognized in the eastern region of Sichuan. One day, Shen Nong was boiling water in his garden, and a mysterious leaf fell in the boiling water. Shen Nong drank the water, and it tasted good. He named the plant as Cha (the Chinese way of calling tea). After that, people found lots of ways of drinking tea. For example, people started with putting the tea leaves in their mouth, but then Shen Nong taught people to put it in boiling hot water. Shen Nong tried all kinds of plants and found some of them good for human and some that can kill us, when he ate the ones that is harmful, he will take a piece of green tea, It help him to stay alive. In the following years, people found more and more ways of drinking tea, and they built rituals based on tea. The ancient people use the tea to entertain themselves, or someone else important for them.

After people figure out how to drink tea in a correct way, they started to put different plants in it. For example, red jujube, matrimony and tangerine peel. These are the basic types of plant that people put in tea, which makes tea much more attractive and healthier.

In Han dynasty , tea started to be spread between scholars and royal families, it became a kind of elegant and enjoy. People started to learn about how to plant, pick, and drink tea, it has become a basic rules and etiquette. Until Tang dynasty, tea formally became the symbol of culture. Three genres appeared, Zen, Confucian, and Daoist.

In the next one thousand years, tea was passed down, not just because of its taste and etiquette, also because tea is really functional. There is a kind of substance that makes people awake in the tea leaves, it is called Caffeine. Caffeine is also found in coffee that people drink everyday. It makes us excited because Caffeine will hyper up our muscles and our nervous system so that's why when we drink too much tea we will feel hard to fall asleep.

Meanwhile, other countries has started to recognize tea, the kind of drink that has a good taste and makes human awake.

England imported tea from China, but there is nothing to sell to china. The profit trade of tea was very high. England loss a lot of money, so trade deficit, and lots of money came in China. To Change the trade deficit and lost of silver, so England sell opium to China.

Tea has changed the history of China and other countries, it has become a remarkable part of human culture. Now, people had made different things with tea.

Invention of the Translating Earphone

Shanghai Singapore International School, Tao, Ling Feng – 11

In the future, imagine a world where learning multiple languages is no longer a necessary, especially in a country like China, where new things are reshaping the way, we communicate. This transformative change could be a remarkable invention an earphone that can translate any spoken language. This device could change the way we talk and solve many problems.

Listen to this story at an international airport: Two elderly Chinese travelers, arriving in Chicago, facing a hard situation. One of them fall on the ground, showing signs of a heart attack. An airport staff member rushes to to the two elderly traveler, but language becomes a barrier. In a world with translating earphones, this language problem could be avoided. The elderly man's explanation of his condition would be expressed so they can save the life. This profound technology could have on overcoming language barriers in emergency situations.

Imagine further the experience of a Chinese traveler exploring a dangerous place like Mongolia, where language differences can turn a trip into a challenging trip. Because of Wi-Fi, normal translating apps on phone iPad watch become useless. However, with the translating earphone, communication becomes possible without relying on internet. This technology can don't rely on Wi-Fi or internet in no internet situation. With that you can solve many problems in unfamiliar place.

The design of the translating earphone. Makes from a mixture of nanofiber blend and titanium alloy, it can be auto transformed to fit in people's ear. There's more, when you are not using it, it could transform into a cool or beautiful ring, bracelet, or necklace, making it a tool and a fashion accessory.

This future invention helps peoples and societies in worldwide. It has the power to help understand, emergency responses, normal speaking. And upgrade the travel experience by eliminating language barriers. As we dream of this useful and awesome technology becoming a real, we are appreciating a community that can easily go over language problems. And have better connection in the whole world.

Modern Chinese Inventions

Shanghai Singapore International School, Yueng, Sum Yui Tiffany – 9

There are many spectacular inventions in ancient China, such as paper, gunpowder, and the compass. However, I am going to talk about a modern invention that is very popular in China. Now, let's stop and think what is the first app that you use every morning after you wake up? I believe it is WeChat. Since 2011, WeChat has developed the way Chinese people communicate and how they use digital devices. Let's check out how this APP grew to be one of the most popular social media platforms globally, soaring from 0 to more than over 1 billion users in just ten years!

Can you guess how many people were involved in this project? Just seven! The founder of WeChat, Allen Zhang, first had the idea in 2010 because there was a lack of communication tools in China. Back then people made phone calls and messages to communicate. Allen found it was inconvenient, as a result, he invited seven engineers to join his team. On January 21st, 2011, WeChat was officially launched in China as a simple messaging and photo-sharing app. At the beginning, not everyone knew WeChat or would like to try this new APP, but the team did not give up. Instead the challenge made them even more determined and put every effort to improve WeChat. Within ten years, WeChat appears in everyone's phone.

Today WeChat is not only a communication app, but also a lifestyle with numerous functions (as is described in its slogan). It is available to reserve hotels, book taxis, and buy tickets within the blink of an eye. In addition, WeChat has revolutionized itself by introducing mini programs. Providing official information and offering online stores in these mini programs makes WeChat even more competitive. Meanwhile, it changes people's lifestyle in various ways. You don't need to download other apps. Everything that you need can be done in WeChat.

Personally, I believe "Moments" is the best, because we can post our memorable daily life and share it with our friends. Also, you can comment each other's posts as a way of socializing. Another function that brings convenience to me is "Payments", as I don't have to count money when I am shopping, which is a waste of time. With WeChat, all I need to do is open the payment and scan the QR code. Done!

It is hard to imagine what WeChat will be like in the next ten years. However, I am looking forward to what it will bring to us in the process of innovating and responding to users' needs. In conclusion, WeChat is a fabulous and ubiquitous app already. With the drive of becoming the best tool and cultivating users' value, it will surely sustain its success.

The Invention of Paper

Shanghai Singapore International School, Zhang, Scarlett – 9

Do you know the source of the paper? It is one of the greatest invention of China. The four invention is the compass, the printing, the gunpowder and paper. In the ancient China, people write on bamboo or silk, but bamboo is too heavy and silk is too expensive, neither one is good for most of the people. He invented the paper at 58 to 75 AD. The invention of the paper affects the whole world, including the North Korea and Japan.

Cai Lun the Inventor of Paper

Cai Lun was born in Guiyang Commandery, which is now the Leiyang. His courtesy name is called Jingzhong. Cai Lun was born in Guiyang Commandery in the Eastern Han dynasty. Cai Lun's birth is unknown, many estimates around 50–62B.C. Legends suggest there was a pool near his home, south of which was a stone mortar that Cai Lun would later use for paper-making.

The Invent of Paper

Using bamboo or silk is hard, so Cai Lun wants to solve this problem. During his extensive research, Cai Lun discovered the potential of mulberry bark fibers, hemp, and other plant materials. He made these fibers into pulp and transformed into the shape like sheets. By macerating the fibers in water, he created a fibrous slurry that was spread onto a screen, pressed, and dried. After all the things Cai Lun done, it became a sheet of a paper.

The Affect to the World

Because of the war, this invention was taken to other countries. The Arabians opened the first paper factory in Samarkand, and then through Arabians, the invent of the paper was spread to Spain first, and Italy then and to the whole Europe. It replaced the expensive pergamyn in Europe. Also it has greatly promoted the popularization and dissemination of knowledge, thus more people can read and learn. In that way, it quickly provided the powerful tool for the Renaissance, and also created the good condition for the victory of the Renaissance movement. Obviously it affected the development process of the world civilization.

In modern days, The invent of paper makes reading and writing much easier, and now many people could use it as a daily necessity. Authors use it to write stories, painters use it to create paintings, designers use it to sketch and many other jobs need it too. Even for me, I can read as many as books I want. Cai Lun's invention of the paper makes our life easier and better.

The Birthplace for Innovation

St. Francis of Assisi's English Primary School, Chan, Tsz Yin – 10

From gunpowder to ketchup, China was the birthplace of many inventions of the past; but which of them affect us the most? Let's take a dive into this topic and look at some of the most famous inventions of the Chinese. We will explore inventions spanning the spectrum from soul-enriching whiskey to the awe-inspiring printing press.

Firstly, the first ever prototype of whiskey was believed to be made in the Tang Dynasty by poets Bai Juyi and Yong Tao, when it was mentioned in one of their poems. When the Song Dynasty came, the commerce and urbanisation had led to the increased popularity of alcohol in major Chinese cities. At this time, the prototype of whiskey already had 15% alcohol in it, but this is nowhere near the amount of alcohol that is put in whiskey in the present day. As the Yuan Dynasty came, Middle Eastern distillation processes spread to China, which improved the existing distillation techniques, and China was then able to make higher-degree distilled alcohol. During the Ming Dynasty, whiskey proceeded to become its modern form, and the rest is history.

Secondly, the wheelbarrow is an invention that was made in the Han Dynasty. It originally had a single wheel at the front of the load, and the operator holding the handles were carrying half of the weight. During the Shu Han Dynasty, a man called Zhuge Liang invented a new form of the wheelbarrow to be used as a form of military technology. He needed an efficient way for a single person to transport heavy amounts of food and munitions to the front lines, so he came up with the idea of using a 'wooden ox' with a single wheel. Another name for the wheelbarrow is the 'gliding horse'. The vehicle had a centrally mounted wheel, with loads carried pannier-fashion on either side and on the top. Using the wooden ox, a single soldier could easily carry enough food to feed four men for the entire month! As a result, the Shu Han tried to keep this technology a secret, as they wanted to win the war against the Cao Wei in the Three Kingdoms Period.

Thirdly, since the appearance of the first silk umbrellas in China, they represented true works of art and were, because of that, limited only to wealthy merchants, noble families, and royals. Created from frames of mulberry bark and bamboo that are at least five years old, Chinese workers painted the silk top with various designs of dragons, nature, landscapes, animals, figures, flowers, scenes from their mythology, and writings. Sometime in the first century BC, first paper umbrellas appeared and they very quickly found their way into the hands of wealthy females who by then accepted sun-shade umbrellas as an integral part of their fashion accessory. Even though carefully crafted and delicate, umbrellas made from paper and silk weighed only a few hundred grams, and they were capable of protecting their bearers from the rain because of a special process of applying oil on their cover. The umbrellas mounted on vehicles were also called San Gai, and the regular people did not have the authority to use them, and certainly could not afford them either.

Fourthly, ancient rockets consisted of four parts, the arrowhead, arrow barrel, arrow feather, and gunpowder tube. The gunpowder tubes, which were mostly made from bamboo tubes or paperboard, were filled with gunpowder, with one end closed and the other end open. A small hole was left for the blasting fuse. When ignited, the gunpowder would burn inside the tube, producing a large amount of gas, which, while shooting backwards at high speed, would produce enormous forward-propelling force. This was believed to be the embryonic form of modern rockets. The gunpowder tube compared well with the modern propelling system, and the sharp arrowhead, with its piercing power of destruction, compared favorably to the warhead of a modern rocket.

Fifthly, there had been two main printing techniques in East China, those being woodblock printing and moveable type printing. In the woodblock technique, ink is applied to letters carved upon a wooden board, which is then pressed onto paper. With the moveable type, the board is assembled using different letter-types, according to the page being printed. Wooden printing was used in the East from the 8th century onwards, and moveable metal type came into use during the 12th century. The oldest extant evidence of woodblock prints created for the purpose of reading are portions of the Lotus Sutra discovered at Turpan in 1906. They have been dated to the reign of Wu Zetian using character form recognition. The oldest text containing a specific date of printing was discovered in the

Mogao Caves of Dunhuang in 1907 by Aurel Stein. This copy of the Diamond Sutra is 14 feet long and contains a colophon at the inner end.

Lastly, paper-making, one of the Four Great Inventions of China, was invented in the Western Han Dynasty and improved in the Eastern Han Dynasty. In particular, the paper-making technique improved by Cai Lun brought a revolution in writing. The paper that Cai Lun made was easy to carry, and incorporated many different raw materials and promoted the cultural development of China and even the whole world. Before paper was invented, people throughout the world wrote on many different kinds of natural materials. Hemp fiber and silk were also used to make paper, but the quality was far from satisfactory. By the Han Dynasty, due to its rapid economic and cultural development, oracle bones, bamboo and silk were far from adequate to meet people's needs, which resulted in the improvement of a writing medium.

Out of all of these inventions of the past, which one do you think is the most helpful in modern day?

Drilling for Humanity

St. Francis of Assisi's English Primary School, Kwok, Cheuk Hei – 10

Paper. Umbrella. Chess. Ketchup. What do they have in common?

They're all Chinese.

China is famous for inventing many extraordinary and amazing inventions that shaped the world into what it is now. Without these inventions, the world would be very different. Do away with paper, we would still be carving our homework in stone. Without an umbrella, we would be drenched in rain for the better part of autumn. Had chess not been invented, generations of people would have been utterly tormented by boredom and idleness; and military strategists would have been deprived of some of their best strategies in battlefield. Eating French fries without ketchup is almost as unimaginable as breathing without air. These are just a few of the multitude of inventions that are rightfully credited to China. If you ask someone to name some of China's inventions, it would be incredible if they could not name at least five. Looking at all the ingenious inventions over its 5,000 year history, one could scarcely contain the profound feelings of wonder, amazement and pride welling up in our minds.

However, there is one invention that has quietly, but profoundly, revolutionised the world. Its impact reverberates farther than the explosive power of gunpowder; its scope more transcendent than the mystifying accuracy of the compass; and its nature more pervasive than the universality of paper.

It is the seed drill.

Readers are understandably shocked by this choice, which is why it is important to write about it in detail, for fear it might disappear as a footnote history.

The seed drill is a very innovative machine that was invented in the 2nd century BCE, which is a very long time ago. Existing at a time where there was no electricity or transportation, this invention was life-changing for the people who lived in the past, especially for farmers. Even 2200 years ago, it was miles ahead of its time.

A seed drill, or to use its Chinese name "Lou-che", is a vehicle that is animal powered, consisting of an ox and a carriage behind it. The carriage at the back had three feet, thus the name "Three-legged Lou-che". Though it was certainly quite primitive by modern standards, it is hard to overemphasise how impressive it was at that time. Although this may look like an ordinary vehicle consisting of an animal at the front and a carriage for the operator at the back, this vehicle was specially designed. But how is it special? Well, those three legs were very useful as the three legs had ditch diggers under it for sowing purposes. The ditch diggers digs a ditch in the flattened soil, sows the seeds, covers the soil, and presses the land flat *all within one rotation*. This machine can also toss a handful of seeds on fresh soil. Although in the beginning, only 4 to 5 of 30 seeds successfully developed, this problem was quickly solved as farming techniques improved dramatically. The machine was proven to be convenient, effective and efficient.

So, who was the ingenious inventor who had the intellect to conceptualise this machine and the will to execute his vision to fruition. This machine was invented by a Chinese agronomist named Zhao Gao, who was an official in charge of agricultural production during the reign of Han Wudi in the Han dynasty. His job was to plan, organise and control the operation of the system of farms over time through the use of economics and science. You might think that this is an easy job and that there is no stress involved. After all, China has long established itself as an agricultural powerhouse. But, the reality is that the job was extremely challenging, as it was imperative that the country maintained high agricultural productivity, which is a key part of food security. Millions of people depended on his plans to succeed. If the agricultural output is low, that means the food prices will skyrocket and become overpriced, which is not ideal for anyone.

If not for the existence of this device, the farmers would have had to plant the seeds by hand, which is extremely labour-intensive and tiresome, and results in high levels of wastage and uneven growth. It would be next to impossible to maintain a consistent and reliable food supply for one of the most populous and advanced civilisations on Earth. Countless generations of farmers have Zhao Gao to thank for their abundant haul every year. Although much is still not unknown about the past, it is quite amazing how China manages to invent these game-changing machines and things.

Three thousand years later, the fire still burns.

The Story of Paper

St. Francis of Assisi's English Primary School, Ng, Sheung Man – 11

China has invented a lot of new things that have impacted the world. Paper, gunpowder, printing – they all came from China.

In fact, most inventions still affect us now.

You want to write a diary to journal everything you do. You use paper. If paper had never been manufactured, books would have been made from rocks, animal skin or bamboo strips! People would only write few pages since writing too many pages would make the book too heavy to pick up and read. Can you imagine borrowing a Russian novel from a library. I would need a truck!

So who was it who took action and invented a marvellous thing called paper?

Cai Lun was writing a journal about his daily life as an official. But it started to get heavier and heavier every day, since it was made out of bamboo strips. So he tried to find something lighter and easier to carry to write on. He went looking for materials the first things that came to his mind was to make it out of string.

“String is light and flexible,” he thought.

He tried tying it up into a rectangle. It was hard to write on, as it was not flexible at all and did not meet his standards. The strings were too tight to bend.

There goes his first option.

Another thought hit him. “What about fishing nets? It is flexible and won’t be too stiff to bend!” he thought. And although the fishing net was very easy to bend, it didn’t fulfil a standard high enough to be written on. It was hard to even make it into a flat and smooth surface. After multiple attempts, it was deemed not suitable to write on and would be too hard to manufacture.

Well, he should have other options that should work, right?

He did have other options, but none worked. He tried cutting the bamboo into thinner sheets. He couldn't form a page successfully. He tried mixing the nets and animal skin soaked in water. It attracted flies and was a waste of food and was too cruel for him.

Rubber, leaves, beaten metal...he tried it all. And the result was that nothing would work. That was, until he saw some people cutting trees

That was, until he saw some people cutting trees.

What does cutting wood have to do with the invention of paper?

No, it's not the trunk.

No, it's not the leaves.

It is the tree bark.

He saw the tree bark. It was not a smooth surface to write on, but it was flexible. So all he had to do was to make it a flat and suitable surface to write on.

But how?

He first cut off the skin and made it thinner than your hair. Then he soaked it in water, then dried it. At last, he used a rock to smoothen it out. And, *voilà*, it was done. So he tried writing some words. The ink could be written on the surface easily. He tried bending it. It was very flexible. He tried tearing it. It was easy to tear, but didn't break easily either. It was very light – he could take a hundred pieces of paper without getting tired. It was definitely much lighter than bamboo strips.

It was just...perfect. He was totally flabbergasted. He had made a new and cheap material to write on. It was quite like silk, just easier, cheaper and thinner. He showed this invention to the Emperor, and just any other person who had seen and used it. He was absolutely amazed. From that moment on, bamboo strips were useless. Paper had beaten bamboo strips in every way.

And China kept this invention to itself. It was way too precious. That was, until some overseas merchants came to trade. They saw a poem written on paper. So they asked the people what the poem was written on. The people told them, but did not tell them how to make it nor allowed them to be exported anywhere else.

Then how was the world introduced to paper-making?

They spied on China.

It was very crafty, but it worked.

The merchants took a few pieces of paper and gave it to their ruler. After examining it, the ruler ordered a few spies to see how paper was made. And they saw and wrote down everything that they did. Every. Single. Thing.

And, as if that was not enough, they kidnapped one of the paper makers and took him back home.

Once home, the king ordered the merchants to “persuade” (*ahem*) the papermaker to show them how paper was made. The servants quickly copied his methods. The king, taking a completely different route, told everyone he knew how it was made.

But nothing always goes perfectly. It never does and the word spread back to China of all countries.

The king was furious! He called Cai Lun to come over to the palace.

“What have you done?”

“I did nothing to offend you, your majesty! What happened?”

“Why do the foreigners have paper? Explain to me NOW!”

“I...I don’t know why!”

“Liar! You will suffer for the rest of your life!”

And all that was next was a shriek that echoed through the palace.

And that’s how it went. Cai Lun was sent to life in prison. After spending 30 years in prison, he was finally gone. That was the life of one of the most famous men in the history of China.

Compass: An Autobiography

St. Francis of Assisi's English Primary School, Wu, Pak Hei – 10

About Me

Hello everyone! Nice to meet you all here at the Hong Kong Palace Museum. Let me introduce myself first. I am a 2000-year-old compass from the Han Dynasty. I am currently on display at an exhibition entitled “Millenniums of Scientific and Technological Innovation in China”. This is my first time travelling to Hong Kong from my permanent home at the Palace Museum in Beijing. I had been sleeping underground for almost 2000 years before people unearthed me 50 years ago in a construction project in Xi-An, which used to be the capital of Western Han Dynasty.

So that's how I came here. I travelled through time to meet you now in 2023. Bravo! Right? Because of my seniority and pricelessness, the organiser put me in a transparent bullet-proof glass box, so no one can harm me. I feel very safe and warm.....Oh no! Even hot, to be honest, because of the spotlights on me. I should not complain though, as I have long been retired. People said I am too precious to be exposed to any potential risks if they use me for finding directions or other purposes. So I am glad to be given a second life retiring in museums, definitely a comfortable one.

My Components

Do come to visit me if you have time. The exhibition is temporary and will end soon. In case you don't have time to meet me before I return home, let me describe how I look. I am composed of two main components — a magnetic spoon and a square bronze plate. The handle of my spoon has been pointing south since I was born, because the magnetic properties of lodestones from which my spoon was made from align with the magnetic field of the earth. Just imagine the earth as a gigantic bar magnet. Wherever you go and however you put me, my spoon always points north and my handle is always south-facing. You know what magnetism in physics is about better than me! Apparently, people back then did not fully understand the mechanism behind this phenomenon but they were ingenious enough to have created me to help them in their daily living. That's how I was born into this world, definitely with a mission. Let me tell you more about it later.

Name

People all over the world call me “compass” nowadays but in ancient China, I had a different name — “South-governor”. Whenever I heard visitors asking why compass is called “South-governor” in Chinese, whereas all my modern counterparts are north-pointing, how I hope I could explain to them the history and customs related to my name! Well, it was because ancient Chinese considered south as “Yang” and north as “Yin”, and “Yang” was regarded as more vibrant than “Yin”, so it was more auspicious to call me a south-governor.

Use in Feng-shui And Navigation

I am known as a device for direction finding in modern times. Little did people know I had been used for Feng-shui and fortune-telling long before my modern family members are used for navigation. You can't find cardinal points like north and south, east and west engraved on my body because ancient Chinese had a different terminology to express directions. Instead, Feng-shui-related terms unknown to ordinary people were used to denote directions. This represented how your wise ancestors understood the world and the universe at that time. They used me when they needed to choose an area suitable for building houses, planting crops or burying the dead. Feng-shui epitomised how ancient Chinese tried to harmonise with their environment to live a happy life.

So apart from helping people live a good life, another mission of mine was accomplished in Song Dynasty by my offsprings in the compass family. It was not until the early 12th century that we were widely used for navigation in the sea. With our assistance, voyages in the sea became much safer and easier, especially when the weather was foggy or cloudy. In times of extreme weather, I was a reliable helper for sailors because there was no way they could navigate by observing the stars in the sky at night.

In the early 15th century, 80 years before Columbus discovered America, Zheng He, a navigator of Ming Dynasty, embarked on the world's largest navigation journey at that time. From 1405 to 1433, he led a massive fleet comprising of 240 ships and over 27,000 sailors to explore India, Arabia and East Africa in seven voyages. This was marvellous and unprecedented, wasn't it? What an honour to be part of the compass family that contributed to the enormous success of this groundbreaking navigation project. Hurray!

Glorious Moments In Our Family History

Originating in China and spread to the rest of the world, our compass family grew bigger and bigger. We have been a beacon of light in the darkness of the stormy sea. We encouraged mankind to step out of their comfort zones to venture into the unknown and explore new frontiers. In 1492, we aided Italian navigator Christopher Columbus to discover America. We also facilitated Ferdinand Magellan, the Portuguese explorer, to sail around the world for the first time in human history from 1519 to 1521. This was such a glorious past that I cannot help but boast. As you know, discovery of the New World changed the course of history in the early modern period. I can't help but wonder without us, would humans still be living in a world without the Americas? What human civilisation would have been like if I had not been born?

Epilogue

Alas! People nowadays use satellite for navigation. My dear friends, when you use the GPS (Global Positioning System) on the electronic map for orientation, please stop for a moment to think of its prototype, me and my compass family. Don't forget the contribution we have made in advancing human civilisation in the long course of history!

Come visit! See you soon!

Steeped in History, Blended for Tomorrow: The Ever-Evolving World of Tea

The International School of Macao, Chan, Austin – 11

“Tea is the taste of my land: it is bitter and warm, strong and sharp with memory. It tastes of longing. It tastes of the distance between where you are and where you come from.” – Eavan Boland

People all over the world are usually stuck in between making decisions about their choices of drinks. With a myriad of options, tea is one of the top three that is chosen. Tea is not only healthy but it has a lot of benefits and it has played a big role in shaping not only people’s culture, tradition, and celebration but also their manner of life. Surprisingly, the roots of tea stretch as far back as the time of the great pyramids, woven into a legend that spans over six thousand years. In this essay, we will discover the fascinating attributes that tea has to offer.

Our journey through the story of tea begins in ancient China with Shen Nung. While resting beneath a tree, his servant boiled water, inadvertently introducing leaves from the tree into the mix. Curiosity led Shen Nung to taste the concoction, revealing a surprising and delightful difference. Seizing the opportunity, the emperor explored the accidental blend, marking the birth of tea. The emperor found the flavor to be enjoyable and had begun exploring the flavor. However, tea was originally enjoyed by others for medicinal benefits. From then on towards the coming centuries, the popularity of tea in China has grown into different reliefs such as pleasure and refreshment.

Fast forward to a monk's visit to China, carrying tea seeds to Japan. This marked the beginning of a unique Japanese tradition: Matcha. Through the use of a stone grinder to shred the tencha leaves into fine powder, liquid, either water or milk is added, creating a ceremonial beverage that became integral to Japanese culture. This ceremony is a ritual of intention, quiet reflection, harmony and inner peace, which are important factors of Japanese culture. First, the host will invite people to the ceremony, then, the host will prepare the matcha and use the bamboo whisk and scoop; finally, the host will bring out the matcha for the guest to drink with wagashi, a Japanese traditional sweet. Matcha has played an important role in traditional Japanese ceremonies which is a vital part of their culture and heritage. It is a way of celebrating hospitality, respect, and consciousness.

While the Japanese were crafting matcha, the Indians made milk tea, traditionally they used milk from the water buffalo to make their tea. The idea of pouring milk into tea reached India because of the Silk Road, which was an ancient 7,000-kilometer trade route spanning from China to the Mediterranean Sea that lasted from about 100 B.C. until the Middle Ages. People used camels for transporting a plant called *Camellia Sinensis*, which was the origin of black, oolong, green, and white tea, during this journey. The popularity of milk tea eventually reached the United Kingdom. The British, captivated by milk tea, adopted it as an everyday beverage, eventually coining the term "English breakfast tea," served in mugs with milk and sugar.

Furthermore, the difference between Matcha and Milk Tea is that Indians adapted the recipes and added spices to their tea. The spice mixture, Karha, is made out of ground ginger and green cardamom pods. Cinnamon, star anise, fennel seeds, peppercorn, nutmeg, cloves, cardamom seeds, ginger root, honey, and vanilla are a few of the other ingredients they have in their milk tea. Masala Chai, originating in western India which often excludes cloves and black peppercorn, became a global favorite.

As we explore the diverse evolution of tea, a glance into the future reveals exciting possibilities. For instance in Malaysia, there is this drink called Crème Brûlée Milk Tea, which took the milk tea dessert to a whole new level, combining two different sweets in one item. Another interesting combination is found in Taiwan, the idea of mixing oatmeal and milk tea together took the country by surprise. Who would have thought grains could add an interesting flavor and texture with tea. On the other hand in Singapore, there is this unique drink that people invented with a flower called Asian Pigeonwings which possesses a large range of healthy elements that includes antibiotics and muscle relaxing properties which was used long before for several diseases. It also changes color when you add hot water which turns your drink into a light blue color, adding not just health but also aesthetic appeal.

There is no end to tea's experimentation nor will it ever stop brewing, from different innovations and techniques. Tea has become a lifestyle choice that is earning strength from impactful growing trends such as yoga, fitness tracking or even a simple aesthetic instagram post for their feed.

Therefore, this makes me think that anything can be added into drinks, especially tea. It is an ingredient that is versatile and adaptable. It is also a healthy drink but if you would like to satisfy your sweet cravings, you can also find something mixed with tea. There may be some other things you can find tea in like medicine and perfume. But I enjoy consuming it the most! Which is why there is more than just drinking tea, there is a whole world to explore about it. So go ahead, see for yourself how something that came from mother nature could be so special and impactful that even to this day it is being celebrated, used, invented, and added into almost everything that makes us who we are and everything we need.

New Tales of China's Inventions

The International School of Macao, Chao, Chloe – 11

The Chinese have developed many things in the past, such as gunpowder, paper, ketchup and the compass, but they are still inventing many more objects which prove to be very useful to the world. Such as Tik Tok, WeChat, and Electric cars. This is what I think might happen in the future with Electric cars, in a far time ahead.

Transformer:

In the future, Electric cars might be able to reconstruct itself into different forms like the toy transformer. For example, Electric cars with several pushes of a button might be able to transform into an intricate bag, which will house many needs and vanities. It might also be able to change its texture, from hard metal to the soft felt or fabric so it will ensure the user is comfortable when transforming the Electric car. Besides from that, an Electric car can make a house, and again can change its texture from steel to wood. It will have all the necessities of a proper house with whatever size possible. The Electric car in the future might be also able to transform into a robot to help people move and carry bags or children, with strong arms holding up to 91 kg or 201 pounds. It will also be able to help you with injuries and wounds.

AI driving:

In the future you might not need a driver to move your car, using an AI generated control software, you are able to inform the AI where you want to go. It is also able to sense cars and sense red lights. As well as sensing a suitable parking lot or space. The AI driver can be used to transport kids or elderly or anyone in general to wherever they need to go. The AI driving, to make sure you are going to your correct destination, will take the shortest route and the route with less traffic, so it will make sure you will get there as fast as possible at the appropriate speed. The AI Driving will also tell you the duration of the drive, the details of the place and it will also tell you the length of the drive. To guarantee you are truly safe, you will be required to wear seat belts and the AI will be trained so there will be a slim chance that there will be a car crash or any other type of accidents.

Tailoring:

Electric cars in the future are able to change your car based on your needs. If you want you could change in a fair amount of colors. You can type some words and the surface of the car can turn to whatever color. They also are able to have designs or other prints on the surface of the car, but to ensure the safety of children and different people, if it is not age-appropriate for everybody will be detected by the AI and will generate a proper warning to your use of this ability. People will also have the ability to change the inside texture based on what they like to ensure a comfortable ride, it can change to different kinds of fabrics and incorporate different designs or prints, again like the surface. How the tailoring works is that you can install a computer in your car where you can press multiple buttons for the choice for your print or design of your car.

Teleporting

In the future I think that people will be able to go to far away places by flying through space and time so in a matter of minutes, you are able to go to any far away places whether it is across the world or hundreds or miles away. (In the future people might be able to make portals able to wrap into time and space, the portal will also have a scenic view of where you are intending to go, to make sure you are going where you want to go and the place you want to go will not be able to be mixed up with some place similar. The transporter, unlike some airplanes or jets, is silent so you can easily slip away without the need to disturb other people, which is very useful. But if the teleport detects illegal acts or it is asking to go to top secret places or going to places with crime or hideouts for criminals, then the teleport will generate a warning and disable the portal from traveling to that specific place.

Sending Mail:

In the future, people will be able to have the ability to send packages. For example, one might have the ability to send packages from a push of the button and it will be transmitted to the one receiving the package. I think there will be a compartment about the size that could be large enough to fit a tv package at most, or even bigger. You will press a specific button to open the compartment, after that you will place the package in it, then the user using this feature will type some important information and the technology the the car is used to operate, and will transmit the package based on the information you have given. After the information is valid enough, they will run through the checks that the package or mail you are sending is not harmful in any way. Then after the checks the technology operating the car will make the package into another compartment in which the package will be cushioned so there will be no such way of any damaging of the package by robotic hands. Then the package will be slid underground the moment the package is detected above the gateway. So no matter how fast you go, the package will be able to be dropped under ground and in which the package will be moving at extreme speed so it will be able to reach the destination of which it is intended.



Non-fiction

Group 3

AI and Angeleye

Canadian International School of Hong Kong, Yu, Ethan – 11

AI is a wonder of technology, and has a huge potential to assist humanity in making the world a better place. Most people use AI to assist them in writing, or grammar checking. Some ask them questions. Some have doubts about AI, skeptical about its ability to take over the world.

Pros:

1. Security and investigation : AI could be of good use in investigations, as it could help with facial reconstruction, a key to finding criminals. Some could use it to ID people in security checkpoints or high security areas.
2. Assistance in Daily life : AI, such as openAi, can help with questions from the user. It is better compared to the internet as it could provide a more direct answer. Some AI is built with doing specific tasks, but on the other hand, can also do more broad tasks, like finding something about a specific subject
3. Innovation in design : AI can be used to do mathematical problems, such as calculating materials for construction, and also physics to make sure the infrastructure is reliable and safe.
4. Medical and surgery : AI can be used to help doctors and surgeons with medical surgeries as humans do not have as much accuracy as machines. AI is very accurate, and that factor could prove very useful in dangerous and risky surgeries. It can also be used for diagnosis, as it could narrow down bacteria and virus strains to find the correct statement.
5. Automation: easier tasks can be done by the computer, humans can accomplish tasks that require skills.

CONS

Now we move onto the cons, where it starts getting bad and AI will not seem like the angel it is.

1. Economical : AI could hugely impact the economy due to the jobs it could replace. It could especially affect repetitive jobs like cashiers, or waiters. It could possibly do better, due to memory and memorization of customers, tables, etc.
2. Privacy : privacy is a huge problem on the internet, as it could cause data leaks and personal information being online, and risk accounts hacked and data lost. There has already been countless data leaks, and if AI gets breached, countless peoples data will be released to hackers.
3. Education : AI can be a problem to education due to students using AI to cheat, and causing them to get in trouble, or getting expelled. It could also lead to a bad future, due to it being on their reports, and lowering the chances of them getting good schools or jobs.
4. Social Interaction : this may sound weird, but it is a problem with the rise of AI. When people use AI, they can chat with them, and not talking or playing with friends or family
- 5.

Glasses that can give blind people vision

You have probably never heard of Angeleye. It is a pair of glasses built for blind people to help them see. It can detect objects, bank notes, and text reading.

Pros :

1. Detecting Bank notes
Payments are difficult when you can't see, as it is hard to figure out which bill is which. For example, say you have a 10 and a 100 dollar bill. You can't see it, and you have to pick which one is which. It feels the same, so it would be a 50/50 chance, unless you have braille on the bills. With angeleye, it will fix this problem. With banknote detection, blind people are less likely to mess up payments.

2. Text reading and headphones

Text reading might be one of the most important features, as blind people have difficulties reading without braille. With this feature, it can be used as an audio player for books, letting them have a better view of the story. It can also be used to listen to music, making it better for a single pair of glasses.

3. Object detection

Object detection could be used to help blind people with observing their surroundings, and on walks, it postpones the need to use guide dogs. It could help massively with urban areas, due to lots of dangers, like car crashes, posing threats to blind people and when they cross roads.

Inventions of Ancient China

Chinese International School, Lent, Annabella – 13

Our ancestors from Ancient China contributed to a plethora of inventions that have profoundly shaped the way we live our lives today and the very course of human civilization. Arguably, the four most significant inventions that have changed our world include papermaking, printing, gunpowder, and the compass. Paper and printing is used everywhere by everyone and is extremely versatile, being used in books, writing, and arts and crafts. Gunpowder, while more controversial, has nevertheless also left its mark on the world, being used for warfare to mining and construction, to even pyrotechnic firework displays that children love. Compasses have been crucial in the past for sailors, and, later, influenced our modern world by being the template and making maps and GPS possible.

Of these four inventions, papermaking is particularly notable. It is used by people all around the world for many different reasons, for writing books, for children to do homework, for arts and craft purposes, etc. Currently, it is the most used of the four inventions. In fact, there are probably many pieces of paper on your desk right now. Before paper, China had been etching writing onto things like bamboo, animal bones, and even turtle shells. As one might imagine it was not ideal or even practical since people had to spend a considerable amount of time etching and carving onto hard surfaces that were not even easily accessible. With paper, writing and drawing became more practical and efficient, and people had access to it in their everyday lives. Imagine carrying around a turtle shell with etchings! Paper was significantly more practical, and it completely changed the course of China over a span of centuries.

The first piece of paper was invented in the Han Dynasty in roughly 105 CE. It was invented by Cai Lun, an excellent craftsman originally known for creating and crafting ceremonial weapons. He took materials such as fiber, rags, fishing nets, and even nature's raw materials like mulberry bark and hemp, and created something new. He combined all of these materials together and spread them flat, hanging and leaving them out to dry in the sun. The piece of paper was thin, lightweight and presented quite a rough texture as it was made with raw materials. It wasn't bad, but it still had a long way to go. After this original attempt, the papermaking technique of ancient China was modified to include hemp and recycled fishing nets. After roughly 14 years spent developing the Chinese papermaking process (206–220 CE), it changed significantly. It now included plant stems and grass stems, and bits of vegetables like roots and leaves. Most notably, the hemp originally used was replaced by rattan and bamboo because bamboo is a fast growing plant using it allowed for not only quicker but also higher quality production. Paper slowly began resembling the thin, lightweight sheets we know of today.

Paper's evolution did not stop here. Soon, there were multiple and diverse variations of paper. Colors, sizes, materials and textures became available options. Special variations of paper for calligraphy, books, and art etc. were produced, and they were typically made of softer materials that gave the paper a more refined texture ideal for art and literature. These were typically made from vegetable and plant stalks and stems, seaweed, and straw. Since paper made the world of literature and art more accessible, it led to China experimenting in the arts. Overtime, arts and literature flourished in China because more practical and accessible paper led to more people creating stories, writing books, poems and calligraphy. Paper afforded more people the creative liberty and freedom to dabble and experiment in arts and literature, making it accessible to commoners and not just the wealthy who had access to art by etching it onto animal bones and shells. Paper became the engine that drove the advancement of China in the field of arts and literature. To this day, calligraphy, art and poems are a staple of Chinese culture, and without paper, this simply would not have been possible, and our world today would have been starkly different.

Over time, papermaking techniques spread beyond China and reached other parts of the world. China's papermaking quality eventually became so desirable that it began to spread along the Silk Road. The Middle East began using paper soon after its' appearance on the Silk Road Market in about the 8th Century, and it spread to Europe and other western countries in approximately the 12th Century, slowly becoming a global phenomenon.

Today, paper remains a staple of our lives, and we simply can't think of a world without it. Children use it in school for writing, business people use it for important documents, educators use it to teach new generations of students to read and write, and artists use it to create literature like paintings, origami and calligraphy. Papermaking and paper was one of ancient China's most influential and important inventions. It truly had a profound impact on our modern lives and still continues to, despite all of the recent technological advances. It truly changed our lives and made life much easier and practical.

Another Chinese invention that helped shape the course of history was the invention of gunpowder. The invention of gunpowder from ancient China quickly spread all throughout Asia and Europe, before further extending its branches globally. It has contributed to significant parts of our history, and it remains a crucial part of our modern lifestyle.

The invention of gunpowder, unlike the invention of paper, is not exactly credited to one person and its history is more complicated, since multiple people contributed to its discovery over a span of time. The earliest documentation of substances similar to gunpowder was when the renowned alchemist Wei Boyang, or "the father of alchemy" kept an official record in 142 AD about a specific substance made of a mixture of powders. The mixture's explosive properties made it react to stimuli dynamically and "fly and dance," being highly reactive.

After this, Taoist alchemists tried to recreate what Wei Boyang did— yet they didn't do it to intentionally produce gunpowder. They thought the substance Wei Boyang wrote about would help them create a solution that would help them live longer. Their original goal was to develop a medicine that would help them "unlock the secrets of eternal life," and they investigated materials like saltpeter and sulfur. Obviously, their pursuit of eternal life was fruitless, however since they researched materials like saltpeter and sulfur, their quest for eternal life ironically contributed to the invention of gunpowder. The Taoist philosopher Ge Hong, upon hearing the Taoist alchemist's investigations of saltpeter and sulfur and other powders, documented these ingredients in his books, marking an official record of it.

At this point, alchemists were quickly realizing that these ingredients for gunpowder could be used in warfare and for military purposes, so after the ingredients were written down by Ge Hong, the gunpowder continued being developed and researched. A few decades later, the first official "formula" of gunpowder surfaced in the Tang Dynasty in the military manual "Wujing Zongyao", and it included a mixture of 6:6:1 saltpeter to sulfur to birthwort herb.

Similar to paper, once gunpowder was widely renowned and used for warfare in China, it took to the Silk Road where it swiftly became popular and traded by merchants everywhere, known as one of China's most coveted goods at the time. It swiftly spread to countries along the Silk Road with it spreading to other parts of Asia, and even extending to Europe. After it also became a global phenomenon, gunpowder started becoming especially prevalent in warfare starting from the 10th century. It was first utilized in bombs, cannons, and fire arrows, before firearm weapons were invented in the 13th century.

The invention and the discovery of gunpowder completely revolutionized warfare. Gunpowder significantly contributed to how warfare has changed over time, making new inventions like firearms and cannons possible. However, gunpowder has also revolutionized other industries, not only being used for warfare purposes. Gunpowder has helped to enhance the entertainment industry through pyrotechnic firework displays, which as insignificant as it may originally seem, has actually become thoroughly integrated into many cultures, traditions, and festivities around the world, for example during New Year's. Gunpowder has also advanced the mining and construction industries, being used in tunneling underground, mining, construction and architectural purposes, like constructing railways, roads and paths.

Gunpowder has been one of the most influential discoveries and has largely shaped the vast majority of technological advancements. It remains extremely prevalent today, yet again reminding us of its lasting impact on our society.

Throughout the course of history, very few civilizations have managed to leave an impact with their legacy of inventions as impressive as that of ancient China. China's innovations have contributed to shaping human civilization's past and present, and these four only represent a miniscule portion of the inventions, merely scratching the surface of the wonders China has gifted the world with.

Inventions Throughout History

Diocesan Girls' School, Lai, Wing Luen Vian – 14

German Philosopher Thorsten J Pattberg once said that “The Four Great Chinese Inventions – compass, gun–powder, paper, and print – are legendary. Less talked about are meritocracy and banknotes.” I, too, am particularly enchanted by the technology and inventions of China. From toys like kites to cooking ingredients like noodles and ketchup, from daily essentials like indispensable toothbrushes to handy umbrellas, these materials that improved the quality of our lives originated in China.

Did you know that the bristle toothbrush was invented in 1498 by the Chinese? They created toothbrushes with coarse horse hairs attached to bone or bamboo handles. The bristles were the stiff, coarse hairs taken from the back of a hog’s neck and attached to handles made of bone or bamboo. It was later brought to the new world by Europeans. Imagine what our lives would be like without these handy tools for our teeth. Everyone would be talking with sickening breath, stinking up the hallways at school. Dentists would have endless job hours, considering the fact that everyone would be having tooth decay and would need to get their teeth pulled out. Our appearances would also look worse, without our ivory white teeth but teeth covered in yellowish plaque. It just fascinates me how this one single tool can turn our lives around by 180°.

Strolling down the streets of Jordan, it is suddenly pouring like cats and dogs. My initial thought would be to open up my umbrella in hopes that I would not get wet upon arriving at school. The sole reason why this practical tool exists is thanks to the ingenious minds of our ancestors. Without it, we would be drenched in rain and experience severe sunburn under the scorching sun, bringing discomfort to our eyes.

While the Chinese invented these handy–dandy tools in the past, they are also elevating themselves in the advancements of technology. China’s most powerful modern technology, facial recognition system, logs nearly every single citizen in the country, with a vast network of cameras across the country. It controls human behavior and makes the country a safer place to live in by classifying citizens based on their ethnicity while singling them out for tracking, mistreatment, and detention. This system further proves its notability through the way it encompasses punishments and rewards in order to improve governance and stamp out disorder and fraud.

Aeroplanes burn fossil fuel which releases CO2 emissions and many other toxic gases, which take a toll on the environment and increase the rate of global warming. However, three in four Americans who have traveled in the last five years went for the food, according to SWNS Digital. An absurd thought of a new gadget that I have full confidence that the Chinese could invent would be a machine that allows people to share food across the internet. The idea of this new invention is that food will be put into the machine. It would then be sent to space through advanced technology that travels at the speed of light. In the blink of an eye, the food will be transported to another city, country, or even, another planet. With this sophisticated technology, it is possible that in the near future, carbon emissions will be lessened with people having access to various foods from other countries without the need to even step foot out of our houses!

While ancient inventions certainly captivate me, there is no limit to new ideas and state–of–the–art technologies. With ambition, determination, and wild thoughts of imagination, each household might just have machines that bring us access to foods across the globe in a few decades!

New Tales of China's Inventionss

Diocesan Girls' School, Qian, Yan Tung Angela – 13

Although it may not seem like it, this chinese invention is a treasure chest that contains hidden, shimmering treasures and may be one of the greatest inventions ever created. It sounds crazy, but the invention I'm talking about is paper.

Some say it's just a sheer sheet to be written on. However, they failed to realize the vitality of a mere sheet of paper. It's the same thing that preserved all the cultural heritage and history from the olden times which have been passed down by generations. Think about it. Loads of things happen to be in the presence of paper. It doesn't matter if it is the most famous Chinese watercolor painting or if it's the least popular novel in the city. They all come to life on paper.

Paper is used for note taking, baggaging, origami, art, and much more purposes. and if Cai Lun, a Chinese official in the Han Dynasty, didn't create paper, then none of these could have easily taken place.

Creating paper was no easy task for Cai Lun. Wanting to create another material for people to write on except for heavy bamboo and turtle shells, he embarked on a journey to create paper. He failed numerous times, due to either the paper being too soggy or too hard to write on. However, on one particular day, Cai Lun mixed mulberry bark, hemp and rags with water, mashed it all together, squeezed out the water and left it under the sun to dry. After thousands of times of attempts, to his surprise, the result was exactly what he wanted. The paper was soft and light, making it easy to write on as well as to carry around. Just like that, the first ever piece of usable paper was created.

Cai lun serves as a great representation of the Chinese to this day. He was an extremely open minded executive and listened to others' suggestions hoping to improve and enhance the making of paper. He did not falter even when his multiple attempts failed. He continued to improve his paper making even after he succeeded, constantly aiming for perfection.

The creation of paper illustrates the driving force behind Chinese inventions. The greatness of Chinese inventions lies in the respect for freedom and openness. The magnificent and inclusive Chinese culture embraces diversity. Just like Cai Lun, the diligent nature and resilience of the Chinese people further increase the probability of success for each invention. Therefore, even as dynasties rise and fall, great inventions continue to emerge: when the Han Dynasty hit its rock bottom, Cai lun's invention rose to the top.

If the 5000 years of Chinese history can be used to predict the future, I can joyfully predict that an invention equally significant to world civilization, like paper, is currently brewing within the wisdom of the Chinese people. It is on its way.

Living the Dream Life

Diocesan Girls' School, Sung, Zhi Yin – 13

A while ago, I was having lunch with my aunt and her baby daughter when suddenly, the little 8-month-old started wailing. Her cries pierced through the air but my aunt calmly told me the little one was just hungry and needed to be fed. But here's where things got interesting.

In a very composed way, my aunt said, "Let's finish our dessert here first. After that, can you come back to my home with me to get a bottle for her before I drop you off at your place?" I readily agreed, but couldn't help but wonder: Wouldn't it take too long to go home, boil the water, and make the milk?

Little did I know, my aunt had a secret up her sleeve. Seeing the confusion on my face, she chuckled mischievously, pulled out her phone, and pressed a couple of buttons. She then explained her ingenious solution as she finished the rest of her New York Cheesecake on her plate. "I can boil the water here on my phone digitally while choosing the temperature I want. By the time we get home, it will be ready for me! It saves me so much time."

I was astounded! This is such a simple yet so thoughtful piece of technology, I thought. With my best friend's birthday just around the corner, I couldn't help but think of the perfect gift for her in icy cold Scotland. So, I had to ask my aunt what this incredible invention was.

She smiled and said, "That's the Xiao Mi Smart Kettle I'm using. With China's advanced technology, there are so many things we no longer have to do manually."

At my aunt's words, an idea started to take shape in my head. Since China is already making these cutting-edge techno products so affordable and accessible, wouldn't it be possible to digitalize our entire home in the near future?

Let's imagine this: after a long day at school packed with classes and ECAs, I arrive home. The moment I set foot inside my home, the entire space springs to life. The bathtub is filled with warm water infused with my favorite lavender bath salts, heated to the perfect temperature. My favorite Taylor Swift music plays softly in the background, and the indoor light is tuned to a warm white light for a spa-like experience. As I emerged from the bathroom after a heavenly 20-minute bath, the milk shaker in the kitchen stopped. It has crafted a powerhouse of nutrients based on precisely calculating my daytime movements from my smartwatch: Sweet ripe bananas, mingle with a medley of juicy blueberries, strawberries, and raspberries. To add a final touch, a tablespoon of almond butter and a drizzle of honey that I always love. Yum!

Then a faint beeping sound alerts me to my afternoon tea dish— Char Siu Sakura Pancake. It is a personalized dish based on my taste: a Chinese-style savory pancake with a Japanese twist, infused with the essence of cherry blossoms. While I am in the bath, the meal preparation robot's mechanical arms and sensors, poised for action, have already measured and combined the required ingredients and heated the perfect batter in the griddle. The aroma wafts through my nose as it emerges from the griddle with a texture that only 3-star Michelin chefs can make. The perfectly crispy golden outer layer's surface glistens under the kitchen lights. With every gentle bite, the thin layer melts away to reveal a soft and tender interior. Oh, what a treat that comforts and satisfies my weary stomach!

Then a beeping sound catches my attention. 'Giselle,' announces our virtual home butler, 'your parents are on the speaker.' Then my parents' faces were projected onto the wall, and I saw them tightening their seat belts in the car, asking me about my day. Then Mum asks our butler, 'So, what's good for dinner today?' 'Well, it's around 15 degrees today, so I suggest either preserved sausages with sticky rice, or pepper salt pork stomach so—' 'Pepper salt pork stomach soup!' Dad and I chant at the same time. Mum laughs in agreement and confirms it with our butler.

Thirty minutes later, as my parents walk through the front door, the simmering pot of soup is already at the dining table for our family. Gone are the days when my parents had to scramble to put something together from the fridge after a hard day's work and sweat in the kitchen. Now, we can wind down and enjoy our nutritious meal, laughing and talking, catching up with each other about our busy day. Then, our butler put on the newest episode of Little Master Chef for us, and we picked a recipe that we wanted to attempt together that weekend as a family activity. Our butler notes it down and places an order for the ingredients to be delivered as we call it a day and get ready for bed.

From gunpowder and the compass to TikTok and Wechat, Chinese ingenuity has influenced the world we live in for thousands of years. As descendants of the dragon, we carry within us an inherited spirit of innovation and limitless imagination. Just as our ancestors revolutionized the world in their time, we too can also push boundaries and shape the future world. As Jack Ma, the founder of Alibaba Group, once said, 'The seeds in the hearts of young people will one day change the world.' As long as we let our minds soar, there are simply no limits to what we can achieve!

The History of China's Inventions

ESF Island School, Chung, Jayla – 13

China, Zhongguo, Cathay, they're all names for one of the world's biggest exporters of commodities and industrial economy. Many different countries claim that they invented some of the world's greatest inventions from ancient times but China is currently leading the world in the realm of technology. Alibaba, Meituan, and Tencent have made the world shake with their products. Of course we can never forget about the big 4 inventions our ancestors made like papermaking, gunpowder, the compass and printing. Without our ancestor's advances in inventions we wouldn't have the foundation for education and many jobs would cease to exist. If our oriental ancestors never invented the papermaking techniques then we wouldn't be taking exams and writing would've stayed on bones. The compass was the starting point for the age of exploration, 200 years later Columbus was able to explore the world and discover the world as we know it today. Fireworks and war, the same essential powder in both, gunpowder was also another one of the many inventions. Let's dive into deeper detail about the great Chinese inventions.

The most recognisable invention in the Big 4, papermaking. While the exact beginnings of papermaking in ancient China are still largely unknown, it can be linked to the Han and Eastern Han dynasties (206 BCE–220 CE and 25–220 CE). At first, the Chinese recorded information using a variety of materials, including silk, bamboo, and even animal pelts. Nevertheless, these resources were costly, time-consuming, and scarce. The pivotal moment came when Cai Lun, an eunuch working in Emperor He's court in the Eastern Han Dynasty, asserted that paper had been invented in 105 CE. Cai Lun combined mulberry bark, hemp, rags, and old fishing nets, pounding them into a pulp and laying it out in thin sheets to provide a sturdy, lightweight writing surface. Papermaking was invented in China and soon expanded throughout the country, finally making its way to the Islamic world in the eighth century. Due to the use of heavy iron coins in the Sichuan region in the 11th century CE, wealthier people were forced to store their money in public warehouses, where it was safer. Around 1023 CE, the Song government began distributing paper certificates to individuals showing how much money they had in their savings accounts. Additionally, these certificates can be used in transactions instead of transporting physical currency. During the 12th century CE, merchants in other parts of China once again switched from carrying bulky coin bags to using lighter paper bills for transactions. They eventually helped create paper money around 1120 CE, when the Chinese government monopolised the issuance of these receipts, producing the first paper money in history. By 1260 CE, paper money had become what we now call real paper money: it could be held for as long as desired, used across the country to make purchases, and converted into gold or silver at any time. About 300 years after Cai's discovery, in the 8th century, the secret made its way to what is now the Middle East. But papermaking did not reach Europe for another 500 years. Spain saw the construction of one of the first paper mills, and soon paper was produced in mills all throughout Europe. The 12th century saw the spread of papermaking skills throughout Europe, which completely changed how information was kept and shared. The invention of paper had a significant influence on literature, education, bureaucracy, and the arts. It also promoted knowledge dissemination and cross-cultural interaction. Papermaking replaced expensive and limited materials with a lightweight, long-lasting writing medium, revolutionising the recording and dissemination of knowledge. The development of education, administration, and knowledge preservation can be attributed to the discovery of paper in ancient China. It made it possible for literacy to grow, for ideas to flow, and for literature, art, and science to flourish. The advent of paper money changed the economic environment by enabling larger-scale trade and transactions. Paper money further developed from papermaking techniques.

The Chinese are credited with creating the compass during the Han Dynasty (2nd century BCE). Originally, instead of being a navigational aid, it was employed as a divination tool. The first compass was a "south-pointing chariot," which was made of a magnetic spoon-shaped object that was oriented along a central axis. It constantly pointed south as it matched the Earth's magnetic field. During the Song Dynasty (960–1279 CE), the full potential of the compass for navigation was realised. Compasses were first used by Chinese seafarers to navigate the seas, giving them more accuracy and confidence when venturing into unknown waters. This discovery made it easier for ideas to travel great distances and for marine trade and exploration to flourish. Throughout his travels, the renowned Chinese explorer Zheng He relied heavily on his compass and later became instrumental in European exploration during the Age of Discovery. "The Book of the Devil Valley Master" contains the first recorded mention of a compass and its

application. The compass, or "south pointer," as the Chinese called it, might be carried by jade hunters in addition to its primary function in order to save them from being lost while travelling, according to the author. Earlier versions of these kinds of compasses have other indications in addition to its fundamental parts. The eight principal directions (north, south, east, west, northeast, northwest, southeast, and southwest) were marked on the metal plate with Chinese characters. Further signs indicated more precise directional gradations and connected directions to images from the "I Ching", a famous work of Chinese philosophy. There was another kind of early compass with a completely different design. The Chinese also used a gadget that involved submerging a wooden fish with a magnetised needle in a water-filled bowl to detect direction. The invention of more accurate tools that made it possible for explorers to precisely traverse the seas and essentially alter the course of history was made possible by both the fish- and spoon-type compasses. It made the Age of Exploration easier by enabling the finding of new places and the mingling of cultures. The compass evolved into an essential tool for international travel and had a big impact on the development of the contemporary world.

In conclusion, the Chinese inventions of papermaking and the compass stand as remarkable achievements that have shaped the world as we know it today. These inventions, part of the Big Four Inventions, have had a profound and lasting impact on human civilization, both in ancient times and in the present day. These were the foundations for the inventions and technological advances we have today. Without first using the compass, we wouldn't have such great cultural diversity all around the world. If those cultural exchanges never happened, we humans wouldn't be so advanced. It's teamwork that lets us reach big goals, but it would never happen without the tiny steps humanity has taken before.

China's Ancient Inventions And Discoveries

ESF Island School, Lin, Kwan Ting Quentin – 12

China is well-known as "the world's factory." Picking an item from a shelf in a supermarket, you would find "Made in China " in one way or another. But did you know that these are not China's only inventions? China has been inventing new and unheard concepts for thousands of years. For example, they created papermaking, printing, gunpowder, and the compass, now known as China's Four Great Inventions.

One of the most amazing discoveries of ancient China was silk production, which was discovered by Empress Leizu (西陵氏) about 2700 BCE when she unintentionally unwound the strands while removing silkworm cocoons found in her cup. She started experimenting with it and learned how to weave it into cloth. The process of making silk was once kept a secret, which made it a very desirable good. However, the secret of silk became known in Western countries. News about China's silk manufacturing started to get out there. Two monks dispatched spies to China in the sixth century CE to study agriculture. The Western Hemisphere's silk industry began when they smuggled mulberry seeds and silkworm eggs.

Silk is still a valued resource nowadays, cherished due to its luxurious feel. It is used in home furnishings, luxury goods, and more. Silk's texture and feel make it ideal for high-quality clothing and accessories. Silk production is now a global industry, with China being a significant producer. On the contrary, in ancient times, only China knew how to produce them throughout the Silk Road Trade. Silk has been a valuable resource since 2700 BCE, and it is still just as cherished now. It has been a valuable commodity in the Silk Road Trade, and it still is nowadays in the economy and marketing. The practices and processes of creating and manufacturing it into different forms, such as clothing, accessories, and furnishing, have changed a lot.

Another commodity China discovered was paper, discovered during the Eastern Han Dynasty around the 2nd century CE by Cai Lun (蔡伦) by combining mulberry bark, hemp, old rags, and plant fibers to create wet pulps. It would later be dried and pressed to create an early prototype of paper sheets. This invention was a breakthrough, as paper was much more affordable, lighter, and easier to make than bamboo slips and wooden tablets, materials used for writing long before the invention of paper. It eventually spread across the world.

After undergoing many developments and innovations, the paper we use is much different than the paper Cai Lun discovered and invented because it is much easier to manufacture and is much cleaner and whiter than Cai Lun's prototype. The quality of paper was also significantly different, as Cai Lun's prototype was coarse and uneven, while modern-day technology allows us to create more consistent and refined products from it. In the old days, paper was an expensive commodity because of the amount of manual labor involved in its production. In modern days, it is now massively manufactured using automatic machines, making it more and more easily available than in ancient times.

To conclude, paper is a staple in life, cheap and available in modern days, though scarce and expensive in ancient times. The quality of paper gradually increased over the centuries because of many developments and innovations made to it. The practices in making these started with pressing and drying a wet pulp made by four ingredients, which is still almost the same thing but made with slightly different materials and much better quality thanks to the use of machinery instead of manual labor.

A third significant Chinese invention is tea, a beverage Chinese people enjoy. It was discovered in 2737 BC by Emperor Shen Nong. According to the legend, the invention of tea happened while he was boiling water; a few leaves from a *Camellia sinensis* tree fell into the pot. He found the beverage to be enjoyable, and the rest was history.

Today, tea is still a widely consumed beverage throughout the world, but there have been a few tweaks to the commodity, for example, in processing, packaging, price tags, and availability. Tea has even been changed to a cold drink, making it more versatile. Overall, it is still as popular worldwide as it was in ancient times.

To summarize, tea is a Chinese invention that is processed into different types, enjoyed hot or cold, and has many potential health benefits. It changed from being used for medicine to a worldwide drink and a significant product for beverage companies and restaurants around the world. It has expanded from just China to Japan, then also Great Britain, then the United States of America, and finally, tea is now culturally significant as a beverage worldwide.

One more commodity China has created was the invention of porcelain, usually a white scorched transparent ceramic, such as bowls, pots, vases, and a lot more. It was created during the Eastern Han Dynasty as well, by an unknown group of potters and kiln operators experimenting with types of ceramic materials and changing pottery production practices. The process of how porcelain was invented in ancient times wasn't well documented, so unfortunately, the details became lost to history.

In modern times, porcelain has continued to be highly valued and widely used, and the characteristics of it have remained unchanged, while the production process has changed quite a lot, with the process being first mixed into a slip, then shaped, dried, and scorched at high temperatures in kilns. Glazing can be added as an option.

Porcelain's appearance and properties have not changed much, but the materials and process used to make it have changed drastically, becoming more mass produced since it is easier to manufacture them and also being able to use easily available materials everywhere to create it. It is also in Chinese houses everywhere due to its importance to them and to Chinese culture.

In conclusion, these inventions are all necessary to our daily lives nowadays, and they make our lives more convenient. For example, paper is a lot more affordable and cheaper, and silk is now a luxury household furnish for cloth and furniture, and so much more. Inventions are great for mankind, but the key is to be able to identify the problem, be imaginative, be resilient, try countless times, use trial and error, sometimes asking for help, and refine and innovate the prototype as much as possible. Remember, an eleven-year-old Frank Epperson invented ice popsicles, and Louis Braille invented the universal language for the blind at fifteen years old, so all you need is a spark of imagination and you might be able to create something revolutionary!

Chinese Inventions: Exploring the Legacy of Innovation

ESF Renaissance College, Yuen Ting Chan, Natalie – 11

China, a land renowned for its ancient civilisation and rich cultural heritage, has left an indelible mark on the world through its astonishing inventions. China has a rich history spanning across various dynasties and its contributions to Chinese civilisation are remarkable. Many of the Ancient China inventions are still used today and the Chinese inventors have revolutionised various fields, shaping our understanding of science, technology, agriculture, traditional medicine, health and modern innovations. Ancient China has Four Great Inventions, paper making, printing, magnetic compass and gunpowder are the four most important inventions which originated from the Chinese.

The first of the “Four Great Inventions” of Ancient China is the invention of paper, which greatly affects human history. Paper gets its name from the Egyptian ‘papyrus,’ despite not being an Egyptian invention. Paper was invented in China in 105 AD by Ts’ai Lun, a bright Chinese court official. His advanced paper making technology spread to central Asia and the world through the Silk Road. Prior to the invention of paper, the Chinese communicated through pictures and symbols carved into tree bark, painted on cave walls, and marked on papyrus or clay tablets. Ts’ai Lun invented paper by mixing mulberry bark, hemp and rags with water, mashed it into pulp, pressed out the liquid and hung the thin mat to dry in the sun. It was 300 years later, after Ts’ai’s invention, during the 8th century, the secret of paper invention travelled to the region that is now known as the Middle East. It took another 500 years for papermaking to enter Europe with Spain being the first place where the first paper mills were built, and soon, paper was being made at mills all across Europe. Once paper was easier to make, books, bibles and legal documents were printed on paper. The American paper mills tried the Chinese method of shredding old rags and clothes into individual fibres to make paper. The mills changed to using fibre from trees when the demand for paper grew as wood was less expensive and more abundant than cloth.

Printing is the second of the “Four Great Inventions” of Ancient China. Printing was first invented in China around the year 700, during the Tang Dynasty (618–907), before it spread across Southeast Asia. Woodblock printing and movable type printing were the two types of printing that were invented in China. Woodblock printing was already a widely used technique in the Tang Dynasty. However, this kind of printing technology was expensive and time-consuming. During the Song Dynasty, a man named Bi Sheng (972–1051 AD) invented movable type printing, making printing quicker and easier. He first carved individual characters on pieces of clay and then hardened them with fire. These movable type pieces were later glued to an iron plate to print a page and then broken up and redistributed for another page. However, this printing technology was not widely used within China itself, except for very large jobs. Due to the considerable number of characters used in the Chinese language and the relatively lower cost of the technology, wood or metal block printing remained the dominant technology. By the mid 19th century, newer printing technology from the West started to decline the traditional printing in China. However, Europeans also re-imported print technology to Southeast Asia in the 16th century, spreading the technology to new areas. New research continues to examine the global connections underlying the spread of this amazing technology.

Another “Four Great Inventions” of Ancient China is the invention of the magnetic compass, which was invented by the Chinese during the Han dynasty (206 BC– 220 AD). Shen Kuo (1031–1095), a Han Chinese scientist and public official of the Song dynasty provided the first explicit description of a magnetized needle in 1088 and Zhu Yu mentioned its use in maritime navigation in the text Pingzhou Table Talks, dated 1111–1117. The magnetic compass invented by the Chinese was initially for the use of feng shui evaluations. The magnetic compass

was later adopted for navigational purposes by the Song dynasty during the 11th century and later in Western Europe and Persia in the 13th century. During the 10th century, the magnetic compass played a large part in European history when a magnetic compass was used by Christopher Columbus on his first Trans-Atlantic trip. The magnetic compass has been widely used in almost every form of transport across the world. In this modern era, compasses are being used not only on boats, but also on planes, cars and even hikers use them regularly for directions.

Gunpowder, one of the “Four Great Inventions” of Ancient China, is the first explosive to have been developed. The gunpowder was invented by Chinese Taoist Alchemists about 901 AD and it was invented when they tried to find a potion to gain human immortality by mixing elemental sulphur, charcoal and saltpetre. The earliest possible reference to gunpowder appeared in 142 AD during the Eastern Han dynasty when the Alchemist Wei Boyang, also known as the "Father of Alchemy", wrote about a substance with gunpowder-like properties. The gunpowder invented by the Chinese was used in warfare and in later years, the gunpowder enabled the invention of the cannon and guns which replaced swords and bows. The Chinese later developed fireworks, another gunpowder related invention which its uses are a complete contrast to war. The Chinese believe that the fireworks help to drive off evil spirits and today, the fireworks are enjoyed as a means of celebration all over the world during the lunar new year.

China’s scientific and technological skills extended far beyond ancient times. The abacus, an extraordinary counting device, laid the groundwork for the development of mathematics and commerce. Porcelain is another great invention of ancient China. Porcelain was highly prized in the world and many artworks had been introduced to the West through the Silk Road. The invention of porcelain not only produced exquisite works of art but also revolutionised pottery and influenced global trading networks. A seismograph, a ground breaking device for detecting earthquakes was invented by Zhang Heng (78–140 AD) in 132 AD during the Han Dynasty. The invention of the seismograph displays China’s profound understanding of natural phenomena and its commitment to scientific exploration. Furthermore, China’s expertise in silk production not only enriched its cultural heritage but also fostered international trade and diplomacy.

China’s contributions to Traditional Chinese Medicine (TCM) continue to impact global healthcare practices. TCM’s holistic approach to health and its natural healing methods has led to it gaining recognition among non-Chinese communities. TCM’s holistic approach to health which focuses on the balance and harmony of the body, mind and spirit offers an alternative treatment option for individuals who are seeking alternative to Western medicine. TCM is often used alongside conventional Western medicine as part of integral healthcare, leading to increased interest and acceptance among non-Chinese communities. There has also been a growing interest worldwide in natural and alternative healing methods. The non-Chinese individuals may incorporate TCM treatments such as acupuncture, herbal remedies and other non-invasive techniques into their overall healthcare plan. Acupuncture, a key component of TCM, has gained widespread acceptance and usage among non-Chinese communities. The art of acupuncture with emphasis on stimulating specific points in the body has provided alternative therapeutic options for pain management, stress reduction and healing. Furthermore, practices like Tai Chi have not only promoted physical well-being but also cultivated a harmonious connection between mind and body.

China’s rise as a global power has been accompanied by modern inventions. The development of high speed rail networks has revolutionised transportation, connecting vast regions and facilitating economic growth. E-commerce platforms such as Alibaba have transformed the retail landscape, enabling convenient online shopping experiences on an unprecedented scale. Moreover, China’s pursuit of renewable energy technologies such as solar and

wind power has positioned it as a leader in sustainable practices contributing to global efforts in combating climate change.

It is ever so interesting to learn about the “Four Great Inventions” of Ancient China. The invention of papermaking elevated the dissemination of knowledge, propelling the development of literature, education and record keeping. The magnetic compass unlocked mysteries of navigation, allowing explorers to traverse the seas and discover new lands. Without the compass, navigation would have certainly taken longer and it is possible that certain places may have never been discovered. Gunpowder not only has played a huge part in civil engineering but gunpowder has also revolutionized warfare. The invention of printing revolutionised communication, making books accessible to a broader audience and nurturing intellectual growth.

The Chinese are responsible for countless inventions. China’s remarkable inventions have shaped the course of human history leaving an indelible mark on civilisation. From ancient times to the modern era, Chinese inventors have constantly pushed the boundaries of innovation, enriching various fields and improving the lives of people worldwide. The enduring legacy of China’s inventions serves as a testament to the creativity and intellectual skills of its people, inspiring future generations to continue exploring the frontiers of human knowledge.

Papermaking

ESF Sha Tin College, Chao, Serena – 11

The first paper was made by Cai Lun, a Chinese dynasty court official who had a great love for his city's people. He was well-known for both harsh punishments to lawbreakers and for providing financial aid and essential supplies to the poor to help them through harsh winters. Additionally, he would even assist with crop harvesting during the autumn.

One day, while maintaining peace in the city's marketplace, he heard sobbing coming from a paper stall. Upon investigating, he found a woman in deep distress. After comforting her, the woman explained her predicament – her son needed writing materials for a significant assessment, but bamboo sticks were too heavy, and silk was too expensive.

Upon returning home, Cai Lun was deeply affected by the woman's sorrow. He sat in deep contemplation, his serious expression resembling a tragic comedy mask, while his mind raced with thoughts. Two days of intense pondering led to a groundbreaking idea, and he created the first paper by mixing fishing nets, plants, and charcoal into a watery substance, which he then dried in the sunlight.

Paper, which is lighter than wood, as well as more animal-friendly than animal skin, and cheaper than silk, gained widespread use throughout China. In the 1800s, the production of paper spread to Europe, initially sparking concerns that it was linked to Satan, but eventually paper became the primary medium for writing worldwide.

Thanks to Cai Lun, the paper has become an indispensable tool for written communication.

How was the Compass Invented

ESF Sha Tin College, Chiu, Jensen – 13

Before the compass was invented, people could only determine the directions through the sighting of landmarks or sampling mud from the seafloor. Other cultures such as the Polynesia would observe birds, winds, sea debris, and sea state. The Norse used a type of sun compass, Vikings used a refracting crystal during the day and astronomical knowledge at night.

In 206 BC, the Han dynasty of China, the first compass was created with lodestone which is a type of magnetized iron. At that point, the compass was not used for navigation, instead it was used for fortune-telling and geomancy. During the Song dynasty, it was called the "south pointing fish" or the "south-governor" and it was used for land navigation. Originally, the compass was a model of a fish made with lodestone which its head would always point south if placed in a bowl of water. The Chinese people had a geomantic principle of "feng shui" where compasses were used to order and harmonize buildings as lodestone would always point in a specific direction if suspended. That made the Chinese think that the areas the lodestone pointed towards are the best areas to grow crops, build houses, and search for treasures.

Only until the year 1040, during the Song dynasty of China, was the compass used by Chinese scientists and Chinese armies for land navigation. In the year 1111, compasses were also used for sea navigation which was very useful as it allowed travelers to travel to unknown areas of the world without known landmarks, travel during times of heavy fog, as well as allow sailors who wanted to travel far from land to know the direction they are headed towards. This was the beginning of the discovery age.

The first account of the compass was in "Kuan Shih Ti Li Chih Meng" which translates as ("Mr Kuan's Geomantic Instructor"). Another account of the compass was called "Chiu Thien Hsuan Nu Chhing Nang Hai Chio Ching" which translates as ("Blue Bag Sea Angle Manual") which was more detailed as it also implicitly depicts magnetic declination. In the text "Chung Hua Ku Chin Chu" by Ma Kao written in the 920s, the compass was described as a mysterious needle and the needle's shape was compared to a tadpole, lodestone spoon, and iron needle. In the 11th century. The first reference to a direction finder device was found in a book from the Song dynasty that dates to the 1040s. In the book, there was a description of a "south-pointing fish" made of iron and put in a bowl of water which is best used for orientation during nighttime. In another book translated as "Collection of Most Important Military Techniques", the "south-pointing fish" is used when troops encounter dark and gloomy weather and cannot orientate using landmarks as a guide.

It is widely accepted that China invented the compass, however some say that the Arabs brought the compass into Europe from China, while others say that the compass was brought to Europe and the Islamic world through the Indian ocean. Some scholars have even suggested that Europeans made an independent discovery of the compass. In the year 1190, Europe had been acquired with the compass which, unlike the Chinese where their compass pointed south, the compass of the Europeans pointed north. By the year 1232, Muslim explorers also used the compass for navigation. However, unlike both the Chinese and Europeans, Muslim compasses, which were called Qibla, pointed towards the Kabba in the province of Mecca as it is the holiest site in Islam.

One of the methods that the Ancient Chinese used to create the compass was to rub lodestone onto a needle's tip with lodestone before hanging it on a strand of silk. When prepared this way, the needle would sometimes point north and sometimes point south. In the 11th century, the Chinese found another method of creating the compass which is by heating a piece of steel of a really high temperature then rapidly cooling the steel in water. The cooling in water allowed the steel to orientate itself towards the Earth's magnetic field. This type of magnetization is called "Thermoremanent Magnetization" and can be used to understand the magnetic fields of ancient Earth.

The compass is one of China's greatest inventions as it allowed the world to be mapped and guided explorers into unknown areas of the world. Without the compass, we would need to use stars to navigate. However, we cannot see

stars in foggy places. Moreover, a hike in the forest or flying a plane would be impossible without the compass as we would easily get lost. Christopher Columbus needed the compass to be able to discover North and South America without getting lost in the middle of the ocean. It allowed explorers to spend more time on necessary work such as finding food and shelter instead of wasting their time navigating without a true idea of their direction. The compass has allowed us to trade technology and knowledge as well as create maps of the Earth. Developing from the ancient Chinese lodestone spoon, we now have dry compasses, bearing compasses, liquid compasses, electronic compasses, just to name a few. The world would be a completely different place if the compass never existed; many say that it is the greatest invention of mankind.

In conclusion, the invention of the compass allowed the world to be discovered to its true extent. Before the invention of the compass, sailors would avoid the open sea in fear of getting lost. When the compass was created in 206 BC, it was used for fortune-telling and feng-shui to point towards the best positions for farming, growing crops, and searching for treasures. In the year 1040, the compass was used for navigation and it was described as the "south-pointing fish". Many decades later, needle compasses were created which alleviated the fear for Chinese sailors of getting lost when they explore the open sea. There were many accounts in ancient China of what we now call a compass for uses of geomancy as well as navigating. In the year 1200, compasses were brought to Europe and the Islamic world, but it is not clear how they were acquired with it. In spite of this, it is clear that Europeans chose to point their compass towards the north pole, while the Muslims chose to point their compass towards Kabba. The Chinese also had more than one method to create the compass such as by rubbing lodestone onto a needle's tip or by heating and quenching steel in water. From the ancient geomantic use of the compass, to the great maps created of the world for many to explore, the invention of the compass in ancient China has changed the earth in many ways that we are affected by everyday.

China's Four Inventions

ESF Sha Tin College, Ng, Missou – 11

Today, China is known for a lot of famous places like the Great Wall and its population as well, being known for being the first country that has the most people. China also has great companies that are convenient like “Taobao” which is a very convenient online shopping platform that is popular everywhere, especially in Hong Kong. Yet, did you know that China’s history is as incredible as it is now? China is also well known for its inventions that it made for the world and is still making for us now. People call China “The Factory Of The World” since the other countries make ideas and China creates them all. Today’s inventions are made by China like the four inventions which impacted the world and China a lot. This essay will discuss the four inventions which are gunpowder, printing, paper making, and a compass.

The first invention was known to be Papermaking. This whole invention happened when the Western Han Dynasty created paper in 202 BC – 9 AD and was later improved in the Eastern Han Dynasty by Cai Lun. After Cai Lun improved it, the paper was soon named after him Cai Hou paper. Cai Lun was a court official who invented the paper-making process which mostly used rags as the raw material for making paper. The full list of materials used to make this was mulberry, other coarse fibers such as fishing nets, old rags and hemp waste. This kind of paper using these materials was much lighter and cheaper than previous materials and more suitable for Chinese calligraphy. Before paper was invented, people around the world wrote on many different kinds of natural materials. For example, Ancient Egyptians used papyrus scrolls to write down history, Ancient Europeans wrote on animal skins, while in Ancient China, people wrote on bones, tortoise shells, and bamboo strips that were all used for writing in China. However, that stopped because it was soon later proved that it was not suitable because of their size and weight. With time, paper has been used for paper wrapping in China since the 2nd century B.C. and was not widely used for writing until the 3rd century. By the 6th century, paper also began to be used as toilet paper while during the Tang Dynasty, paper was folded into square bags to preserve tea bags. Therefore, lots of people used to write on different kinds of natural material but when China invented paper, it spread across the whole world and the paper making soon evolved into toilet paper.

On to the second invention, printing. Printing was invented over a millennium years ago, around the year 700 during the Tang Dynasty. This invention soon spread across East Asia, Southeast Asia, and soon all over the world. They also discovered how to print on paper using blocks of wood and other materials. Seals were the first form of printing used in China, starting around 250 BCE, seals were stamped on official documents, personal letters, and works of art. However, Woodblock printing was the most popular form of printing in China back then. By the sixteenth century, colored wooden blocks used for printing became very popular in China, and printers produced many beautiful book covers. At first, woodblock was mainly used for printing books about agriculture and medicine as well as for printing calendars, calligraphy, and auspicious charms. In the year 762, the first printed books were sold in the markets of Chang’an, the Tang capital. Furthermore, in the year 782, printed papers were available in the marketplace as receipts for business deals and tax payments. How did they use wooden blocks to print? Well first, the text had to be written on a sheet of paper. Then the paper was glued face-face down onto the wooden block. Using a knife, the words were carefully engraved on the wood. The surface of the wooden block was then inked and covered with a sheet of paper. Gently brushing the paper over the engraved words. In conclusion, when printing was invented, the most popular way of printing was Woodblock printing and it soon started to print beautiful book covers and lots more other objects.

The third invention is Gunpowder. The invention of gunpowder can be traced back to the ninth century when Chinese alchemists made “immortal pills” that were imagined to keep a person living forever. Of course, they did not find a drug but invented the formula of gunpowder in the process of refining. What was gunpowder made of? Gunpowder is made of Sulfur, Saltpeter, and charcoal. Many Western history books over the years have stated that the Chinese only use gunpowder for fireworks which is not true. After they used gunpowder for fireworks, they used it as an explosive substance in the military, such as cannons and fire arrows. Cannons and muskets were already quite popular in China during the Song Dynasty, making China's technology a world leader. The first ever weapon to use

gunpowder was called a “Fire Lance”. This was a spear that had a gunpowder charge in the bamboo stick which was attached near the end of the shaft. How did a fire lance work? When you light up the gunpowder in the tube with a burst of flame, it would eject toward the target. Soon later, pellets were added and that made it a combination of shrapnel and fire. The ancient Chinese also learned about charcoal when firing pottery and used it as fuel. During the Shang and Zhou dynasties, charcoal was widely used in metallurgy which is one of the processes of making metal. Charcoal produces less ash than firewood and burns hotter, making it a better fuel. In conclusion, when gunpowder was invented, the first weapon to use gunpowder was called a “Fire Lance” and it slowly upgraded by adding pellets.

The last invention was a compass. Many types of compasses look different but almost work the same such as “The South Pointing Fish” or “The South Pointing Spoon” and the “Dry compass” which is in the shape of a turtle, these three types of compasses were the most popular ones. The first compasses were made out of lodestone, a naturally magnetized stone of iron, in Han Dynasty China called the “South Pointing Fish”. It was a wooden fish with a magnetized iron needle in it, that floated in a bowl of water. The second type of compass was the “South Pointing Spoon” which was the first compass ever made. During the Han Dynasty, the Ancient Chinese found that a naturally magnetic iron called lodestone would always turn around to point south. They carved a spoon out of the material and put it on a polished board. The third type of compass is the “Dry Compass” and in Chinese tradition, a live tortoise should be kept in the north or north-east part of the house. The north direction is associated with Kubera, the god of wealth. Therefore, there are lots of types of compasses that look different but work the same way.

To conclude, China made all these wonderful four inventions. Paper was first created in the Western Han Dynasty and was later improved in the Eastern Han Dynasty by Cai Lun. The materials he used to make paper were mulberry, other coarse fibers such as fishing nets, old rags and hemp waste. These materials made paper much lighter and cheaper than the previous materials and more suitable for Chinese calligraphy. Second, Printing was invented over a millennium years ago, during the Tang Dynasty and it soon spread all over the world. Woodblock printing was the most popular form of printing before, and seals were the first form of printing used in China. Third, Gunpowder was made when Chinese Alchemists were trying to make immortal pills but failed to make them. Instead, they didn’t find the drug but made gunpowder in the process of refining. The first ever weapon to use gunpowder was called a “Fire Lance”. This weapon soon improved by adding pellets that made a combination with shrapnel and fire. Lastly, many types of compasses looked different but worked the same and the first compasses were made out of lodestone. Even though China is a very beautiful place, we still cannot forget what great inventions they made and be grateful for what we have now. In this essay, we learnt about what great inventions China made and even some information about Chinese tradition as well.

The Unforgettable Impact of Gunpowder

ESF South Island School, Cheung, Pak Hei Zani – 12

Gunpowder, a groundbreaking invention known as one of China's "Four Great Inventions," is an extraordinary and dangerous creation that has left an unforgettable mark on the world. Although its origins lie in China, its influence has transcended borders. The advent of gunpowder completely transformed the nature of warfare, making battles more lethal and reshaping the course of human conflicts. Almost every military weapon incorporates gunpowder in some shape or form, whether it be through bombs, cannons, dynamite, firearms, or various types of ammunition. However, gunpowder also possesses positive applications, such as its use in fireworks, mining operations, and signalling flares. Its radiant and illuminating properties make it particularly invaluable for lost hikers or explorers in need of rescue.

At first, China used gunpowder to frighten and surprise their enemies. However, once they realised the incredible potential of their invention, the Chinese quickly shifted to using gunpowder for deadly purposes. Since 904 A.D, the military of the Song Dynasty has been utilising a variety of gunpowder devices to combat the Mongols. These weapons included innovative creations like "flying arrows," which involved attaching a burning gunpowder tube to an arrow. Moreover, they had basic hand grenades, shells filled with poisonous gas, flamethrowers, and landmines. As time went on and the 11th century arrived, the Chinese even started loading bombs with gunpowder and launching them from catapults. These fiery cannons required the combined strength of two individuals to transport them and were unleashed from mobile platforms strategically positioned near the fortifications of the enemy city.

China now possesses a lethal and deadly weapon, but how did it manage to get worldwide? Well, there are two primary reasons. First, let's delve into the Silk Road. Despite its name, the Silk Road wasn't a literal road but rather an expansive trade route connecting Rome to China. It was a remarkable and awe-inspiring path that facilitated the exchange of goods between various nations. In those times, there was no concept of Bitcoin or modern currency; instead, valuable items unique to each country were traded. For example, India offered herbs and spices, while China provided gunpowder and silk. This is how gunpowder found its way to other corners of the globe. However, the Silk Road is no longer in use today. Our advanced technology has paved the way for superior and more efficient trade routes. Another route in which gunpowder spread was the Mongolian Invasion. In simple terms, the Mongolians acquired gunpowder and employed it in their conflicts against Europe. Although they ultimately failed, they left behind the knowledge of gunpowder. The Europeans stumbled upon this revelation when they encountered the bombs launched by the Mongolians through catapults. In a way, Europe then expressed gratitude to the Mongolians by attributing the introduction of gunpowder to them.

As time progressed, the Europeans delved into the potential of gunpowder, leading to an astonishing amount of innovative creations. From firearms to mining explosives and even fireworks, gunpowder became the main inspiration and ingredient for these inventions. Initially, it was used in its simplest forms like fire arrows, fire lances, and basic bombs, mostly during sieges and naval battles. However, as knowledge and technology surrounding gunpowder advanced, so did its applications on the battlefield. By the 14th century, hand cannons and early arquebuses emerged, utilising the explosive power of gunpowder to propel projectiles. Although these early firearms were not highly efficient and had slow reloading times, they marked a significant advancement in warfare. Over time, gunpowder found its way beyond military applications. It became indispensable in mining, where explosives were used to extract valuable minerals, as well as in construction projects involving explosives. Additionally, gunpowder became an important part of celebratory events, such as the captivating fireworks displays introduced during the Renaissance in Europe. However, it is important to recognize that gunpowder's primary purpose in Europe was for

military use. Its invention completely changed warfare and played a crucial role in shaping European history. Gunpowder quickly spread throughout Europe and soon had a global influence.

Now, let's delve deeper into the inner workings of gunpowder. Beware, it may get a little bit scientific from this point. Black powder is composed of three key parts: charcoal as the fuel, saltpetre or niter as the oxidizer, and sulphur as the stabiliser to maintain a consistent reaction. Without the oxidising agent, the reaction would be slow, almost the same as a teenager waking up on a Monday morning. However, gunpowder's saltpetre supplies the necessary oxygen. As soon as it is heated, the sulphur takes the lead and starts a fire, causing the charcoal fuel to catch fire and increasing the temperature to a level where the nitrate molecules break down. This breakdown releases oxygen, which plays an extremely important role in an explosion process. When potassium nitrate, sulphur, and carbon come together, they produce nitrogen and carbon dioxide gases, along with a big amount of heat energy and potassium sulphide. As the gases quickly expand due to the heat, they create an explosive force, pushing action into movement. Confused? No need to fret! This topic is quite scientific and might require a bit of chemistry knowledge to maintain a full grasp. However, I've already done my best to simplify it as much as possible (Although it's still quite scientific, I must admit).

Gunpowder left an indelible mark on history, reaching far beyond the conflicts of the battlefield. Its impact was impressive, shaping the course of exploration, colonisation, and the rise and fall of mighty empires. The introduction of gunpowder-based weapons overturned the balance of power, altering geopolitical landscapes and redefining the strength of nations. However, alongside its immense potential, the widespread use of gunpowder also presented significant changes to the way we extract minerals and celebratory events. When mishandled or misused, its destructive capabilities led to devastating loss of life and widespread devastation. The emergence of gunpowder weapons constructed a new era of warfare, as shown in the increased casualties and civilian suffering of wars, and also the abandonment of old fashioned weapons of the 12th century.

China's Enduring Legacy of Inventions

ESF South Island School, Kim, Jiyoo Jennifer – 12

China's rich history of inventions has left an indelible mark on the world, shaping our daily lives and pushing the boundaries of human ingenuity. From ancient wonders like paper and gunpowder to visionary advancements in energy distribution and social platforms, Chinese inventors have consistently pioneered groundbreaking ideas. This essay delves into both the remarkable inventions of the past and explores the exciting possibilities for future innovations, showcasing the enduring spirit of Chinese creativity.

China's ancient inventors were masters at blending practicality with innovation, resulting in creations that continue to influence modern society. Among China's most influential inventions, paper revolutionized communication and knowledge dissemination. Its invention in the Han Dynasty (around 200 BCE) transformed the way information was recorded, preserved, and shared, laying the foundation for the development of written culture. This remarkable creation led to the proliferation of literature, the preservation of historical records, and the democratization of knowledge.

Similarly, gunpowder, initially developed as an elixir of immortality, eventually found its way into military applications. The discovery of gunpowder's explosive properties revolutionized warfare, enabling the invention of powerful weapons and changing the course of history. However, its peaceful uses, such as in vibrant fireworks displays, showcase the versatility of Chinese inventiveness and their ability to find beauty and joy in their creations.

Chinese cuisine is a testament to the country's culinary ingenuity, with two remarkable contributions standing out. The invention of noodles, dating back over 2,000 years, demonstrates China's early mastery of gastronomy. Noodles quickly spread across the Silk Road, becoming a staple food worldwide and a symbol of cultural exchange. Today, noodles come in an array of shapes, sizes, and flavors, offering a versatile and delicious culinary experience.

Moreover, the origins of ketchup can be traced back to China. The Chinese sauce "ke-tsiap," made from fermented fish, became a favorite condiment. This sauce eventually evolved into the tomato-based ketchup we know today, signifying the enduring influence of Chinese culinary inventions and their impact on global taste preferences.

China's influence extends beyond technological achievements; it also encompasses economic systems and financial innovations. The Chinese experimented with different economic systems,

from the early agrarian-based model to the establishment of market towns during the Song Dynasty. These experiments laid the groundwork for China's later economic prowess and contributed to the development of trade and commerce.

One of the most remarkable financial inventions was the creation of paper money during the Tang Dynasty (7th century CE). This revolutionary concept replaced cumbersome metal coins and facilitated trade and economic growth. The introduction of paper money transformed the way people conducted business, making transactions more efficient and expanding economic opportunities. This innovation became the precursor to modern currency systems and played a pivotal role in the rise of China as an economic powerhouse.

China's inventors demonstrated remarkable resourcefulness in harnessing their natural environment. Centuries ago, they discovered natural gas and ingeniously used bamboo piping systems to distribute it to villages. This early energy distribution system, reminiscent of modern infrastructure, showcases their foresight and sustainable practices. By utilizing bamboo, a renewable resource, they created an efficient and environmentally friendly means of delivering energy to communities. This invention highlights the Chinese commitment to finding innovative solutions that harmonize with nature.

Furthermore, the invention of toilet paper, albeit several centuries after the appearance of toilets, exemplifies the Chinese commitment to hygiene and sanitation. In the 6th century, during the Sui Dynasty, the use of paper for personal hygiene gained popularity. The invention of toilet paper reflects their dedication to improving the quality of life for their people and their foresight in addressing public health concerns.

Chinese inventors also made significant strides in military technology, including the development of early missile systems. Their understanding of projectile mechanics allowed them to create advanced weapons that greatly enhanced military capabilities. These advancements showcased their scientific prowess and propelled military strategies to new heights.

China's inventive spirit extends to the present, with impactful contributions that shape the modern world. Chinese social media platforms, such as WeChat and TikTok, have revolutionized communication and connectivity. These platforms have become integral parts of people's lives, enabling instant messaging, video sharing, and content creation. Their innovative features and user-friendly interfaces have inspired global imitations, highlighting China's ability to create innovative digital ecosystems that transcend borders.

Chinese video-sharing websites have also left an indelible mark on the digital landscape. Platforms like Youku and iQiyi have cultivated a thriving online entertainment industry, providing a vast array of content to millions of viewers. These platforms have not only transformed the way people consume media but have also influenced the evolution of online content consumption worldwide.

China has emerged as a global leader in the production of solar panels, fostering the growth of renewable energy. With a commitment to sustainability and environmental conservation, China's investment in solar technology has propelled the world towards a cleaner and greener future. By harnessing the power of the sun, China has reduced reliance on fossil fuels and contributed to mitigating climate change. Their advancements in solar energy technology have made renewable energy more accessible and affordable, paving the way for a sustainable energy transition on a global scale.

Furthermore, China's advancements in electric vehicle (EV) technology have contributed to the global shift towards eco-friendly transportation. Recognizing the need to reduce carbon emissions and combat air pollution, China has prioritized the development and adoption of EVs. Through government incentives and investment in charging infrastructure, China has become a driving force in the pursuit of sustainable mobility. Their efforts have not only reduced dependence on fossil fuel-powered vehicles but have also stimulated innovation in EV technology, making electric transportation more efficient and affordable.

In conclusion, China's rich history of inventions is a testament to the country's enduring spirit of innovation. From ancient marvels like paper and gunpowder to visionary advancements in technology and sustainability, Chinese inventors have consistently pushed the boundaries of human creativity. Their inventions have shaped our world, revolutionizing communication, warfare, cuisine, finance, and more. As we look to the future, inspired by the past, we can anticipate even more remarkable inventions emerging from the depths of Chinese ingenuity.

The legacy of China's inventors serves as a reminder that the spirit of innovation knows no bounds and that the pursuit of new wonders continues to shape our world. China's inventors, both ancient and contemporary, have left an indelible mark on society, improving the quality of life and driving progress in various fields. As we embrace the future, we must recognize the importance of fostering an environment that nurtures creativity, supports scientific research, and encourages collaboration across borders. By unleashing the full potential of Chinese ingenuity, we can envision a future where groundbreaking inventions continue to transform our lives, inspire generations to come, and contribute to the betterment of humanity as a whole.

Invisible Stars

German Swiss International School, Ling, Sophia – 12

In the vast night sky filled with stars named after famous inventors, many are Chinese inventors, such as Shen Kuo, who invented the first magnetic compass, and Zhang Heng, who created the first seismoscope. They have all made immense contributions to science and technology. However, one Chinese pioneer whose invention established China as the global leader in the textile industry remains conspicuously absent.

Her name is Huang Daopo. She invented the pedal spinning wheel almost 500 years before the spinning jenny was invented in Britain. She paved the way for the development of textile manufacturing in China, and is commonly known as “The Mother of Textile”. Despite this, we have many unknowns about her: we’re uncertain about her hometown, we do not know her actual name, we’re not even sure if her family name is Huang. She mechanised textile manufacture with her invention, yet faded into obscurity.

The widely told story of Huang Daopo begins in 1255 CE when she was just twelve years old. Huang Daopo was one of the unlucky girls at the time – a child bride sold into marriage. After bearing constant abuse, she decided to sneak out of her house. She boarded a ship to the distant isle of Hainan – not just fleeing the oppressive fate of an unwilling marriage, but also choosing to write her own destiny. On the island of Hainan, she learned advanced cotton weaving techniques from the local Li people and eventually became an expert in weaving. During her time in Hainan, she unleashed her potential. She improved cotton planting methods and innovated various techniques related to cotton processing and weaving. After spending four decades in Hainan, Huang Daopo returned to her hometown Songjiang. Upon her return, she discovered that the local women were struggling with the inefficient technique of peeling cotton seeds, which affected their ability to meet the demands of the cotton levy. Huang Daopo spent many nights designing a machine to solve this problem. With the help of a local carpenter, she brought this vision to light. Not content with the initial design, Huang Daopo further improved the machine, changing the original one-foot-long bamboo bow to a four-foot-long wooden bow. She also had the bold idea of transforming the original hand-operated spinning wheel with one spindle into a pedal spinning wheel with three spindles. This innovation spread throughout Songjiang and revolutionised cotton production.

Huang Daopo's invention brought about a dramatic transformation in the lives of Chinese women by making their daily tasks significantly easier and more efficient. But if her invention was so helpful, why did she not achieve the same degree of fame as other male inventors? Was this because her invention was not as significant as the others? Or was it because she was just a woman?

There are a few key reasons for this oversight. Historically, China has discriminated against women. During a time when education was not available to women, there were very few literate women, let alone women inventors. Womens’ achievements may not have been properly documented or attributed to them as historical records at the time tended to focus on the accomplishments of male figures.

Additionally, her invention centred around textiles and manufacturing efficiency, which was considered an unimportant field. The pedal wheel was also an incremental improvement rather than an entirely new technology or flashier breakthroughs like gunpowder, so its significance may have been underappreciated. As a result, Huang Daopo slipped through the cracks of history despite leaving such an indelible mark in China’s textile industry.

Huang Daopo's story of being overlooked despite her groundbreaking contributions is not unique.

In the past, women have faced social and cultural barriers that have hindered their participation in innovation. Societal expectations dictated traditional roles for women, often relegating them to domestic responsibilities rather than encouraging their involvement in intellectual pursuits. Moreover, limited educational opportunities barred women from accessing scientific and technical knowledge, further exacerbating the gender gap in inventing. These societal and educational constraints prevented many talented women from exploring their inventive potential and realising their ideas.

Despite the challenges, very few pioneering women inventors have still emerged and made significant contributions. However, their achievements often went unrecognised or were attributed to male counterparts. For example, Hedy Lamarr, an accomplished actress, co-invented frequency-hopping technology during World War II that laid the foundation for modern wireless communication. However, her work received limited acknowledgment during her lifetime, and it was only in recent years that her contributions have been more widely recognized. This pattern of women's inventions being overshadowed or attributed to men has had a long-lasting impact on the visibility and representation of women inventors.

Even today, the problem persists to some degree.

The underrepresentation of women in science, technology, engineering, and mathematics (STEM) fields has had a direct impact on the number of women inventors. Stereotypes and biases perpetuate the notion that women are less capable or suited for technical and scientific pursuits, discouraging their involvement in innovation. From an early age, girls are often steered away from STEM subjects, limiting their exposure to the fields where many inventions originate. The lack of female role models and mentorship further exacerbates this gender gap. Without sufficient representation and encouragement, women face an uphill battle in pursuing inventive careers and gaining recognition for their contributions.

A study of US patent applications by Yale researchers found that only around 10% of all US patent inventors are female. This is despite women making up half the population. The study also found that applicants with an obviously female name were less likely to have their application approved. The lack of patents does not entirely capture the full scope of women's innovative work, but it does demonstrate their continued underrepresentation. Some breakthrough women inventors like Margaret Knight, who invented the flat-bottomed paper bag folding machine and cloth winding machine, saw their patents questioned on grounds that "a woman couldn't have invented it." Mary Anderson, who invented the windshield wiper, also faced immense obstacles in securing her patent.

Contemporary woman innovators face issues like difficulty securing funding from male-dominated venture capital networks and being taken less seriously in technical fields dominated by men. However, there are now also encouraging signs of progress. The number of women awarded patents has more than doubled in the past two decades. Recently, Jane Poynter became the first woman to be granted a patent for her work on life support systems for space habitats. Today's young girls are also becoming more inspired by the achievements of contemporary women in STEM. Role models like Mimi Aung, who was the project manager of Ingenuity, the Mars helicopter, and Tu You You, Nobel Prize winner for her medical research and had a star named after her, have the potential to light a passion for invention in a new generation. Hopefully, at the current rate of increasing proportion, we can reach gender parity by 2070 or sooner.

In China too, efforts are being made to uncover 'invisible' women inventors from history, such as Huang Daopo. As more women inventor's stories are shared more widely, today's Chinese girls can find inspiration in these 'new' tales and unleash their own potential as an inventor. While much remains to be done to overcome disparities, I believe we can see more 'Huang Daopos' as stars in the future night sky.

From Dust to Discovery

German Swiss International School, Yan, Joanna – 12

Bronze, an enduring symbol of wealth and prestige, continues to hold a significant place in the history and culture of China today. It was an invention birthed within the borders of an advanced nation that delighted in its dominance, and continues to shape our understanding of the ancient civilization that mastered the techniques of bronze casting and related metallurgical knowledge. To this day, bronze remains a testament to this nation's pride in its technological prowess. As we gaze back at the vast tapestry of human history, the legacy of innovation and ingenuity witnessed in ancient China has undoubtedly left an indelible mark on the world, and will certainly continue to act as catalysts for the advancement of humanity in the future.

As I strode into the new exhibition at the West Kowloon Cultural District, namely “Gazing at Sanxingdui”, I couldn’t help but marvel at the appealing collection of archaeological discoveries at the Sichuan excavation site. This was the first time that discoveries from Sanxingdui had been exhibited outside Sichuan province, and I was eager to set my eyes on the artefacts. Stepping into the exhibition, something immediately caught my attention.

A bronze statue, consisting of a cylindrical-shaped head, adorned with intricate engravings, a prominent nose, protruding eyes, and an enigmatic smile stood erect at a towering height. Its body was slim and slender, with enlarged features of the arms at an angle perhaps suggesting the hold of a vessel. The rear of the statue was tinted by a small patch of precious gold pigment – the original colour of the bronze relics that had the fortuitous yet lucky chance to be preserved through the annals of history. These relics were the beacons of another great civilization in its prime, the light of human ingenuity shining through the ages. Every detail, every nook and cranny, was the masterpiece of our ancestors, whispering stories of the unknown. Engraved on the relics were peculiar shapes of Taotie, a totemic motif in the form of a dragon, and uncanny spiral patterns, shapes, animals, eyes... The bronze heads appeared neither melancholy nor enthusiastic, but emanated the daunting sense of solemnity, as if pondering a serious matter at hand, or contemplating a dismal yet inevitable fate. Some of them even looked inhumane... Who were they? What were their stories? I was desperate for an answer.

Largely discovered in 1986, with a preliminary finding in 1927, Sanxingdui is an archaeological excavation site and major Bronze Age culture in modern Guanghan city, Sichuan, China. What is peculiarly unique about the Sanxingdui artefacts is their striking appearances. Coupled with the many theories that circled around their origins, the numerous proposals in regards to their use, and the scant information about the ancient Shang dynasty, Sanxingdui has long been enshrouded in a veil of mystery.

Shu was an ancient state in what is now Sichuan Province in southwestern China. Dating back approximately 4800 to 2600 years ago, Sanxingdui alters the traditional view of China’s origin of civilization. Previously, it has been believed that Chinese civilization had originated from the central plains of China’s Yellow River Valley, providing the idea of a singular, linear development of the ancient civilization. There was also the theory that the Yellow River civilization was the sole cradle of Chinese civilization. However, the unearthing of Sanxingdui suggests the presence of a sophisticated civilization far from the Yellow River that had perhaps co-existed, or even predated the traditionally established narrative, shedding light on the possibility of a diverse development of ancient Chinese cultures.

Sanxingdui also hints at the plausible cultural exchange and interaction in ancient China. Artefacts from the Sanxingdui culture have reflected a certain degree of cultural commonality with other cultures, extensively absorbing bronze casting techniques, ritual systems, and decorations from the Xia and Shang dynasties situated in the Yellow River basin. This displays a profound connection between the Shu civilization and other civilizations at the time, presenting a nuanced and multifaceted picture of China's history.

The construction of a bronze object was widely attributed to a method known as "piece-mold casting". First, workers produced a model using malleable materials, replicating the desired object. Then, the workers proceeded to apply layers and layers of clay to the model, creating a mold that flawlessly replicated all the textures and shapes of the model. Channels and vents were added in addition, to allow molten metal to flow into the mold, and also to ensure that air could escape during the casting process. Once the mold was completed, the model was removed, to leave a cavity that resembled the same shape. The mold was subsequently divided into multiple pieces where decorations could be refined. Moving on, the separate pieces were reassembled and heated, with molten metal poured in to fill the cavity of the model. When the metal had finally cooled down and solidified, the mold was removed, revealing the casted object, where workers completed it with some further refining.

From bronze heads with protruding eyes to altars, bronze figures, masks, the purposes of these relics, however, had long been a puzzle to researchers and archaeologists. When found in the sacrificial pits, most have been destroyed, shattered into pieces with no familiarity. Researchers have suggested that they were used for ritual purposes, to be sacrificed as means of communication with the supernatural realms in sacred ceremonies and worship. Some larger artefacts, for instance the upright bronze figure, symbolised the Shang Dynasty's flourish in its bronze culture, as well as the royalty's pride in its power and prestige.

Legend has it that the ancient Shu people believed in the lore of the ten suns. They marvelled in the idea that birds carried the other nine suns so that only one sun could be seen in the sky, and in their minds, the nine suns transformed into nine holy birds that resided on a revered tree. This was the narrative behind one of the most transcendent relics at the Sanxingdui site – the bronze heavenly tree. It took an interminable duration of 8 years to reassemble the broken pieces of the relic to what is now a 3.96 metre tall bronze holy tree, consisting of a main body and a base, with three branches emerging from three levels on the trunk, each bearing three fruits. The nine fruits each had an intricate bird perched on top, reflecting the ancient Shu people's worship of the solar deity.

Another prominent discovery was the large bronze head with protruding eyes. Some believed it to be a depiction of the legendary founding king of Shu by the name of Cancong, who was described as having protruding eyes, corresponding to the many masks and figures of Sanxingdui that possessed this same feature. Other eye-shaped objects and related relics showcase the possible worship of the eye, providing insights to the ancient Chinese people's religious beliefs.

Undoubtedly, the extraordinary excavation work at Sanxingdui had raised international interests and attention, bringing with it the dire need for cultural relic preservation. Measures need to be taken to prevent the artefacts from experiencing physical damage, deterioration and theft, while research and documentation serve crucial responsibilities in the understanding of the artefacts. It is only through combined efforts can we ensure that the

legacy of the ancient civilization can be preserved, and that the bronze artefacts can be passed down through generations, to forever be an inspiration to others for the artistic beauty, historical value and most importantly – the cultural heritage that they represent.

Bronze is a significant part of Chinese culture, with Sanxingdui bringing China's Bronze Age to its epitome. Hopefully with the advancement of technology, we are able to uncover more secrets from the ancient civilisation, so that we can truly understand the compelling story behind its bronze artefacts, so as to better perceive China's history, cultural and societal development, and to truly recognise its value in not only the ancient society, but the ever changing world that we reside in today.

The Hidden Legacies of Ancient China: Unveiling the Origins and Secrets of Remarkable Inventions

HKUGA College, Sun, Yan Yuet Andrea – 14

China has always been renowned and praised for their remarkable inventions dating back to centuries ago, such as the “Four Great Inventions” being the most well-known, due to them being revolutionary to the world. Not long after, inventions from China soon spread to the rest of the world like wildfire, influencing our daily lives. However, many people may not realize most Chinese inventions possessed more important purposes in the past than they do today. Throughout this writing, I’ll dive deep into inventions we’ve used before but never quite knew the origin and original usage of!

Our first special invention can take you back to your childhood and give you a sweet taste of nostalgia. First built by philosophers, Mozi and Lu Ban in the 5th century BC, the kite is a light frame covered with vibrant, colorful cloth, with a string attached to it. Holding the string by its end, children would often run around while the kite flies in the air, a toy that’s simple yet fun. I myself still vividly remember the days when I always looked forward to releasing a kite whenever I went to outdoor meadows on weekends! The earliest form of a kite was made using wood and resembled the shape of a bird, also known as a “muyuan”. Although nowadays, a kite is mainly for entertainment purposes and is seen as a mere toy, it was first used as an important tool during wartime in ancient China. For example, in the Han Dynasty, General Han Hsin used a kite to fly over enemy territory and used the length of the string to estimate the distance soldiers needed to tunnel to reach under the city wall, ending up victorious through this strategy. Kites were also often used by the military to send secretive messages and signals to each other, helping to facilitate communication. Kites contributed immensely to China’s warfare, much more than you think.

Another invention we might’ve seen around a lot, especially when traveling mainland China, is oil-paper umbrellas. Whether they are displayed as art or sold in local souvenir shops on the bustling streets, you can find these umbrellas almost everywhere. Created using a bamboo frame and paper made of tree bark, the oil-paper umbrella embraced the cultural craftsmanship and beauty of China’s traditions through delicate paintings or poems drawn and written on them. Tracing back to the Warring States Period, the wife of Chinese carpenter and inventor, Lu Ban, invented the first ever umbrella in the world, known as oil-paper umbrellas, a type of paper umbrella. Though it is now used to provide shade from the scorching sun, oil-paper umbrellas, including the colors, served different purposes as well. Used as a traditional wedding item in Chinese weddings, the bridesmaid would cover the bride with a red oil-paper umbrella upon arrival, driving off evil spirits and bad luck. Meanwhile, purple umbrellas symbolize longevity for elders, and white umbrellas were used for funerals. Oil-paper umbrellas were also said to give wealth and prosperity to the person owning them, and what I found intriguing was that the colors of the umbrellas not only had multiple meanings, but also determined the bearer’s social status as well.

Next, the sky lantern, also known as a Chinese lantern, is a small, hot-air balloon designed like a thin paper shell, being launched for play or traditional festivities such as Mid-Autumn Festival and Lantern Festival. Invented by military strategist and sage, Zhuge Liang, also addressed as Kongming, in the 3rd century BC, the sky lantern came to life after he used a message written on the lantern in order to summon help when surrounded by enemy troops, ultimately saving his life. Following this folklore, sky lanterns were also called “Kongming lanterns” due to his sharp-witted intelligence, attribution to this invention, and resemblance of his hat. Even though sky lanterns are used to celebrate festivals and promote the unity of families now, they also used to be strategically used in wars. Similar to kites, sky lanterns acted as ways of transmitting signals, spying and surveillance during ancient China warfare. As the military laid siege on cities at night, the lanterns were launched, illuminating the sky. In present time, during

festivities, people would release lanterns in hopes of carrying away their troubles, and according to myths, the higher the lantern went, the better luck they would receive.

Lastly, we have an inkstone. Although it's rarely seen or sold nowadays, it was in great demand during the Tang dynasty, being even more popular in the Han dynasty. Dating back from the 3rd century BC, an inkstone is a traditional Chinese stationery made of stone, known as a stone mortar. Being used to grind ink sticks into liquid ink, it is commonly used for Chinese art and calligraphy. But before this, inkstones were often given as gifts to many, most importantly the imperial family, due their intricate and beautiful designs. It was even known that the Qianlong Emperor had his very own imperial collection solely dedicated to the precious inkstones. Even though they were mainly regarded as a form of art, it also served as both a token of friendship and a diplomatic gift between nations, having texts or images carved into them. The value of inkstones had a variety of ranges, depending on the design, quality and scarcity of them. Some could even go for thousands of dollars in today's money! To this day, despite the fact that the inkstones are still unfamiliar to many, there are still devoted collectors who collect old inkstones in antique shops as an expensive hobby, as well as inkstones artisans who craft these exquisite masterpieces by hand.

To sum it all up, past inventions in China served different, important purposes before its common use in the present day. Who would've known that a paper lantern was invented to save someone's life? As time goes by, humans will continue to let their creativity soar, much like the kites and lanterns. Eventually, we will discover new ways to use other inventions in different ways, contributing to the traditions passed on from generation to generation.

Throughout my research, it allowed me to have a more in-depth understanding of inventions from my motherland, as well as add onto my admiration and appreciation for these achievements. And what many should know by now, is that there are definitely more to China's inventions than what meets the eye!

The Renewable Energy of the Future: Human Power Plants

HKUGA College, Teoh, Kai You Bella – 14

China has always been known as a leading force in the manufacturing industry due to the abundance of lower-wage workers in the country. Indeed, 28.7% of the total global output for manufacturing can be attributed to China, yet it is unfairly overshadowed by the cloud of bad reputation surrounding our products. In many minds, the label “Made in China” represents poor quality, inexpensive, and pirated or counterfeit products. Regardless of the validity of that notion, when paired with the impression of an authoritarian government and coronavirus-related stigmas placed on the Chinese people, China is often seen by foreigners as a miserable or even barbaric place.

Yet, China has made undeniable progress in the technological field; this time not as a mass manufacturer but as a leading innovator. Applications, machinery, artificial intelligence...China has introduced top models in numerous fields that other nations scramble to replicate. The notoriously addicting Douyin has a copycat counterpart in the western world in the form of Tiktok; the all-in-one WeChat has yet to be beaten; the world’s first robot doctor and quantum satellite were shocking advancements in the medical and space exploration fields respectively; and over 130 language learning models developed account for 40% of the global total amount. It is clear that this is the age for Chinese inventions to grow and shine, and I have more than a few thoughts on our next breakthrough inventions.

To begin with, it is well known that renewable, sustainable energy is one of the hottest topics globally, and China has not been missing out on the action. We are the biggest producer of wind and solar energy as well as all-round renewable energy in the world, but with our large population and rapid urbanization, we are also the largest coal user. It is clear that the clean energy we are generating is not enough to offset our demand. So how will they increase their contribution to renewable energy? It will be through our most abundant resource: people.

As of 2023, China has 1.4 billion inhabitants, the second largest in the world after India. We should harness the power of physiological processes of our citizens. Mobilize each breath, heartbeat, and limb movement, each glucose oxidation, and each vibration in the inner ear... Even using body heat, blood flow, and urine or feces is feasible. All of them produce energy that can be used.

As crazy as I might sound, such technology already exists. Professor Xudong Wang has designed nanotechnology that generates small currents up to tens of microwatts when vibrated by air from breathing, bandages powered by the rising movement of the rib cage, and patches that channels the power of everyday body movements. Professor Rolf Vogel has achieved a vascular turbine that extracts energy from the flow of blood to power a cardiac pacemaker and is testing a device that uses electromagnetic induction to transform heartbeats into electricity. Physicist and chemist John Rogers has created a chip that generates energy from each heartbeat and stores it in a tiny battery. Engineer Wei Hsin Lao has built a device that could harness the energy from our knees when we walk. Human feces have been found to release biogas when digested by a bioreactor by Chinese researchers. Microbial fuel cells that can release electrons from human feces and urine have been made. More are definitely being developed.

Having said that, there are still two flaws in this idea. The first is that each tiny device can only generate a few watts of energy, barely enough to support a small lamp, let alone an entire country’s worth of infrastructure. The second is that they are costly to build and test, which would make mass manufacturing and giving out one to every citizen difficult. China undoubtedly has the capacity to overcome these challenges. Here’s how:

First and foremost, China has strength in numbers. Assuming each person is able to produce 80 microwatts per day using current technology and the entire population takes part, around 112,000 watts would be produced daily, enough to power a startling 1,400 lamp posts. Nevertheless, we have to start innovating to increase that number drastically for it to make a major difference. As the world leader in nanotechnology, we are more than capable of conducting research ourselves and finding more ways to make use of human power. We can find ways to extract more power safely from the aforementioned sources, since the current devices only dare to use the tiniest fraction of the power generated in fear of damaging the organs. We can creatively find other sources of energy in the human

body; whether a little windmill for our flatus or a device for our vocal cord vibrations. A million possibilities lie in wait to be explored, and China has the resources to explore them. If we succeed in finding a way to harness more energy from humans, the figures would far exceed 112,000 watts, maybe to the extent where it could power homes, buildings, and even entire cities.

Furthermore, China, being one of the richest countries in the world, can definitely afford to invest in these energy-harnessing devices. The testing and production in mass quantities will undoubtedly be expensive, but it will pay off in the long term by saving us costs in coal or other fuels, as well as creating a more sustainable power system that will advance China as a green country to discredit the current bad name on us.

There might be concerns or unwillingness from citizens to use the devices due to the understandable fear of such young technology backfiring and harming them. To remedy this, the government should give transparent explanations of how they conducted trials and the results to assure the people. Moreover, a reward program offering cash prizes as incentives or advertisements that utilizes popular celebrities or influencers to showcase the devices in a positive light should be able to sway the people over time.

If we triumph, the inventions would not only benefit China economically, but would also build China a new reputation as an environmentally-friendly country focused on sustainability and the future of our planet with advanced technology. This will both aid China in regaining some of its soft power in the eyes of the people, and give us a boost within international relations when facing politicians who would seek to trade knowledge and technology that might further our development.

To conclude, China has a strong position to harness human energy by building upon current technology to invent more efficient and better models, and we should fully take advantage of this position to launch ourselves into the hall of fame of the innovation field.

Chinese Invention (Paper)

Hong Kong Adventist Academy, Chan, Maska – 13

Throughout history, humans have used paper as the medium of communication. The invention of paper has significantly shaped the human race, from carvings to digital documents.

Paper is a common material that many in the modern world use to transfer information. Before paper, people carved and painted pictures or symbols on bark, caves or clay tablets. These were the ways ancient civilizations used to transfer information and preserve legends. As history progressed, the paper eventually evolved into what we know today, but not many know its creator, Ts'ai Lun.

The creator of modern paper, Ts'ai Lun worked at the imperial court and was trying to find an alternative to bamboo and silk, their preferred way of marking down information at the time. Bamboo and silk were expensive and not readily available, which meant that only the rich could afford books. This motivated Ts'ai Lun to find a cheaper, more accessible alternative to bamboo and silk. He then discovered mixing bark, hemp and rags with water and fermenting it. It would produce a substance that could be flattened into paper. With the creation of paper, more people could access books as it was a cheaper writing material. The invention of paper led China's intellectual culture to grow and develop by giving the people a better alternative to bamboo and silk.

After Ts'ai Lun invented paper, it was only used as a wrapper or padding. It was soon after they started using paper in China's third century. Paper sheets were used as toilet paper throughout the sixth century, and they sewed paper bags to preserve the tea flavor. It was the Song dynasty that then started issuing paper currency.

The invention of paper is so great that there were only a few changes over nineteen hundred years. Has it ever been thought that we have been using an invention that is over nineteen hundred years old? Alas, recording information about things has existed since the dawn of time. As humans, we have been marking down information for years, the oldest marking being about seventy-three hundred years ago, with the paper introduced nineteen hundred years ago. With the invention of the internet, you can write as much as your hard drive can store. Who knows what will be the invention that will help humankind preserve information for years to come?

Cuju: The Ancient Chinese Game of Soccer

Hong Kong Adventist Academy, Ho, Yue Dung – 14

Soccer is a popular sport that people all around the world enjoy. But did you know its origins can be traced back to ancient China? The Chinese name for this game was Cuju. It was a game that brought people together, kept them fit, and taught them some important values.

Way back during the Han Dynasty, which was a long time ago, from 206 BCE to 220 CE, people would play Cuju. It was such an interesting game! They would use their feet to kick a ball made of animal bladders or leather into a net or between two poles. Unlike the soccer we know today, there were not any strict rules about how many players could be on the field or how big the field should be. It was a flexible and adaptable game!

The goal of Cuju was not just to score points but also to show off some mad skills and techniques. Players had to be super good at controlling the ball, which tested their abilities. Whenever they had Cuju matches, it was a big deal. They would have fancy ceremonies and throw parties to go along with the game. It was such a festive and exciting time!

But Cuju was not just a fun game to play—it had some deep cultural meaning too. It taught people culturally important values, like being respectful, loyal, and always trying to improve themselves. Officials and government workers would often play Cuju to build friendships and make connections. Even the emperors and high-ranking officials would get in on the action, using Cuju to show off their strength and skills. If they won against a rival court or a foreign delegation it filled them with pride. It was like saying, "Hey, look how awesome China is!"

Even though Cuju kind of faded away over time, its influence can still be seen in the soccer we enjoy today. The basic principles of Cuju, like kicking the ball with accuracy and working together as a team, are still super important in modern soccer. Cuju's legacy lives on in the hearts of soccer fans all around the world.

In recent years, China has been trying to bring back the spirit of Cuju.

They want to revive this ancient game and make it a national sport again. Schools and universities are even teaching Cuju as part of physical education so that its traditions are not forgotten. They have also organized international Cuju tournaments to get more people excited about this traditional game.

The revival of Cuju is not just about celebrating Chinese history; it is also about preserving ancient traditions and showing how sports can bring people together, no matter where they are from. As Cuju becomes more popular again, it serves as a reminder of the strong spirit of the Chinese people and their commitment to their history.

Just remember, as you enjoy the game of soccer today, do not forget about the ancient art of Cuju and all the cultural significance it holds. It is amazing how a game from such a long time ago can still have such an impact today!

The Invention Of Compass, The Door To The New World

Immaculate Heart of Mary College, De Guzman, Ringor Lewis Jenson – 12

China's compass, a magnetic revelation born,
Guiding sailors' voyages, revealing the world's untold dawn.

Prior to the invention of the compass, ancient civilizations could only dream about their travel and exploration. The yearning to venture into uncharted territories and uncover new lands was deeply ingrained in the human spirit. However, without the guidance of a compass, traversing vast distances across the seas posed a formidable challenge.

It was extremely complicated for sailors, explorers and travelers in navigation. In the ancient world, the travelers could only rely solely on observing the Sun, the Moon or the moving of stars for navigation. Some of them even relied on the profound understanding of astronomy in order to attain the accurate calculations for their travels. In the past, without a proper device like a compass, people risked their lives for their unforeseeable travels.

However, it was when the glorious compass was invented, everything was changed. A crucial navigational device that made an enormous impact not only on maritime and land navigation, but affected global trade and travel for centuries as well. As you read through this essay, you and I will explore more of the invention and the origins of the compass, tracing its development from its early origins to its widespread use in the modern world.

In the 4th century BC, its first mention was in a book called 'Book of the Devil Valley Master', which mentioned a compass-like device. Its description describes it as "south-pointing fish" as the early form of the compass. This actively demonstrates that it was used for its usual purpose—jade hunters used it for navigational purposes; for them not to be lost. People then used lodestone to align with the Earth's magnetic field.

The invention of compass was very much indeed relied on the discovery of lodestone, a naturally occurring magnetic mineral, dates back further than its use in Ancient China. Though the exact timeline of its discovery is uncertain, as it likely predates recorded history. Regardless however, the Chinese in particular, were known to have discovered and utilized lodestone's magnetic properties during the Hans Dynasty which occurred in 206 BC to 220 AD. The development of the "sinan", also known as "south-pointing needle" started, a magnetic compass floating in water. This was a huge development created by the Chinese, as it improved the accuracy and its significance in navigation in general.

When the Islamic World knew about the compass by the 9th century, many Arab navigators and astronomers soon refined the compass's design and navigation techniques.

Then the development of the compass continued, and people made good use of the compass for fulfilling their ambitious dreams of exploration. The compass card and magnetic declination were introduced by Chinese navigator and cartographer, Zheng He, during his voyages in the early 15th century. His expeditions, which took place between the early to mid 14th century (between 1405 and 1433), brought Chinese maritime technology, including the compass, to various parts of the Islamic World including the Middle East and Africa.

The compass also played a crucial role in the West. In the Age of Discovery, it enabled explorers like Christopher Columbus and Vasco da Gama to undertake ambitious expeditions, discover unknown territories and establish global trade networks.

The impact of the compass on navigation cannot be overstated. Prior to its invention, sailors relied on celestial navigation and landmarks, making long-distance voyages challenging and uncertain. With the compass, mariners gained a reliable means of determining their direction, even in cloudy or foggy conditions. This facilitated the exploration of new trade routes, such as the Silk Road and the maritime routes across the Indian Ocean.

The compass also had a significant impact on military strategies and warfare. It allowed armies to navigate more effectively, plan maneuvers, and gain a tactical advantage over their adversaries. The use of compasses in warfare contributed to the rise and expansion of powerful empires throughout history.

Moreover, the compass sparked advancements in scientific understanding. Its magnetic properties fascinated scholars, leading to scientific investigations into magnetism and the development of theories on electromagnetism. This laid the foundation for subsequent discoveries and inventions in the field of physics.

The Chinese invention of the compass eventually spread to other parts of the world, particularly through trade routes and cultural exchanges. Its adoption and adaptation by different civilizations further propelled the global impact of this invention.

One of the further refinements was a compass needle mounted on a pivot by a well-recognized, Italian navigator who played a critical role for the compass to be invented—Flavio Gioia. Additionally, the compass card was divided into 360 degrees, providing increased accuracy in determining direction.

In the modern era, the compass has been evolved to meet the demands of aviation, marine navigation and land surveying. With the creation of modern technology, electronic compasses with sensors and digital technology. It has greater portability, precision and accuracy in modern compasses we use nowadays.

The invention of the compass by the ancient Chinese has had a profound and far-reaching impact on navigation and exploration throughout history. People may only credit Chinese for the compass invention, however, their great invention is still benefiting our modern world.

In recent years, the significant technological advancements in compass design has been assisting our world in a new way. Modern compasses now feature digital interfaces, integrating with global positioning systems (GPS) and other navigation technologies. These advancements have enhanced accuracy and convenience, making navigation more accessible to a wider range of users.

Furthermore, the development of miniaturized and highly sensitive compasses has opened up new possibilities in various fields. These compact compasses can be integrated into portable devices, such as smartwatches and fitness trackers, providing real-time directional information to users during outdoor activities and fitness routines.

In addition to personal navigation, the future of the compass lies in its potential for autonomous vehicles and robotics. Compasses equipped with advanced sensors and algorithms can aid in precise navigation and orientation for self-driving cars, drones, and robotic systems. This technology could revolutionize transportation and logistics, enabling safer and more efficient autonomous navigation.

For further exploration beyond Earth, the compass continues to play a crucial role in space exploration. Spacecraft and satellites utilize magnetometers, which are essentially compasses, to determine their orientation in relation to celestial bodies and magnetic fields. As space exploration advances, the compass will remain an essential tool for navigating and orienting spacecraft in the vastness of outer space.

Looking even further into the future, advancements in quantum technology may lead to the development of quantum compasses. These revolutionary devices would utilize quantum properties to provide ultra-precise and sensitive measurements of magnetic fields. Quantum compasses could have profound implications for scientific research, navigation, and even the development of quantum computers.

In summary, the Chinese invention of the compass revolutionized navigation, exploration, and trade, shaping the course of human history. It also plays a crucial role in human society and has increased navigation exponentially. Its impact extended beyond maritime endeavors, influencing military strategies, scientific understanding, and cultural exchanges. The compass remains an enduring symbol of human ingenuity and its ability to transform the world.

Lastly, the future of the compass, stemming from its ancient Chinese origins, is a promising one. Advancements in technology are enhancing its accuracy, miniaturizing its size, and expanding its applications across various domains. From personal navigation to autonomous vehicles, space exploration, and beyond, the compass continues to evolve, guiding humanity through uncharted territories and paving the way for new discoveries.

Unveiling Ancient Marvels

Immaculate Heart of Mary College, Hung, Tin Lam Emma – 13

China's ancient craft, paper's enlightening sway,
Gunpowder's fierce spark, alchemy's hidden display.
A vessel for knowledge, delicate fibers embraced,
Explosive force harnessed; warfare's legacy traced.

Many people may know that China is a country with a rich history which is marked by remarkable development both in the past and in the present.

China, a place famous for its history and incredible inventions, and has gifted the world with numerous inventions that have shaped human civilization. From revolutionary advancements in agriculture to groundbreaking discoveries in science and technology, ancient China stands as a beacon of creativity and ingenuity.

Among the most significant contributions of ancient China is the invention of paper. In the early 2nd century BC, during the Han Dynasty, a eunuch named Cai Lun revolutionized the world by introducing an innovative technique for papermaking.

Some people said Cai Lun was ordered by the emperor to modify the papermaking process but this was, unfortunately, not explicitly documented. However, there are a few plausible reasons that could have led to the emperor's directive.

Firstly, during the Eastern Han Dynasty, the demand for paper had been steadily increasing due to the growing bureaucracy and administrative needs of the centralized government. The existing methods of papermaking were likely unable to keep up with this rising demand, prompting the emperor to seek improvements in the process to ensure a more efficient and reliable supply of paper.

Secondly, the emperor might have recognized the limitations of the available paper and desired a higher quality product. The existing papermaking techniques using materials like silk, bark, and bamboo fibers produced heavier, coarser paper that may not have been suitable for all purposes. The emperor's order to modify papermaking could have been driven by a desire to create a lighter, smoother, and more versatile paper that would better serve the needs of the imperial court, scholars, and other users.

Moreover, the emperor might have seen the economic potential and significance of papermaking as an industry. By improving the papermaking process, the emperor could stimulate economic growth, create employment opportunities, and establish China as a leader in paper production.

While the precise motivations behind the emperor's order remain uncertain, it is evident that the modifications made by Cai Lun played a pivotal role in transforming papermaking into a more efficient, accessible, and influential practice that revolutionized communication, culture, and knowledge dissemination in ancient China and beyond.

Cai Lun, a eunuch during the Eastern Han Dynasty in China, played a crucial role in the modification and improvement of papermaking. His contributions revolutionized the art of paper production, making it more efficient and accessible.

During Cai Lun's time, papermaking was indeed not an easy job but rather a "heavy duty" which involved using materials like silk, bark, and bamboo fibers. The fact is all these techniques were time-consuming, expensive, and produced paper that was relatively heavy and coarse. To meet the needs of Chinese scholars and the Emperor's court, Cai Lun began experimenting with different materials and refining the processes.

No one would have imagined that Cai Lun could really make it but his perseverance and hard work helped him succeed. His breakthrough came when he introduced the use of mulberry bark and hemp rags as the primary raw materials. By crushing and boiling these fibers, Cai Lun was able to create a pulp that could be spread evenly on a flat surface, forming a thin, smooth sheet of paper. He further enhanced the quality by adding ingredients like tree bark, old fishing nets, and even remnants of hemp clothing.

In addition, Cai Lun's modifications not only made the papermaking process more efficient but also resulted in a lighter, more durable, and versatile product. The new paper quickly gained popularity throughout China. It became a vital medium for writing, painting, printing, and various other forms of artistic expression.

Cai Lun's innovation had a significant impact on the dissemination of knowledge, culture, and communication. The availability of affordable and high-quality paper facilitated the spread of literacy, the exchange of ideas, and the preservation of historical records. His legacy as the inventor of modern papermaking remains an enduring testament to his ingenuity and the profound influence of his advancements on human civilization.

The invention of paper transformed the landscape of human communication, enabling the dissemination of knowledge, the preservation of literature, and the flourishing of arts and science. This breakthrough facilitated the spread of ideas, the growth of bureaucracy, and the development of education systems, ultimately revolutionizing and improving human civilization.

Another remarkable invention that originated in ancient China is gunpowder. Developed during the Tang Dynasty in the 9th century, gunpowder was initially intended for medicinal purposes. However, its explosive properties were soon discovered and harnessed for military applications. A mixture of sulfur, charcoal, and saltpeter (potassium nitrate), gunpowder has provided the foundation for the creation of fireworks, flamethrowers, and eventually, firearms. The invention of gunpowder revolutionized warfare, shaping the dynamics of conflicts across the globe. It propelled the development of cannons, muskets, and other firearms, transforming the nature of warfare and leading to the rise of powerful empires. Beyond warfare, gunpowder also had a profound impact on other areas, including alchemy, agriculture, and the invention of fireworks, which became an integral part of cultural celebrations and entertainment.

Ancient China's contribution to the world of printing is exemplified by the invention of moveable type. While the concept of printing with carved wooden blocks had been practiced in China for centuries, the innovation of moveable type printing revolutionized the process. This breakthrough occurred during the Song Dynasty in the 11th century, with the invention attributed to Bi Sheng, a commoner from the village of Xiangyang. Moveable type involved creating individual characters or symbols on small clay or ceramic pieces, which could be rearranged and

reused for printing different texts. This method significantly expedited the printing process, allowing for the mass production of books, pamphlets, and other written materials. Moveable type printing played a pivotal role in disseminating knowledge, promoting literacy, and fostering cultural exchange in ancient China. Its impact on the world of publishing and the spread of information cannot be overstated, laying the groundwork for the printing revolution that followed in subsequent centuries.

One of ancient China's most enduring and important inventions is the compass. The invention of the compass dates back to the Han Dynasty in the 2nd century BC. Initially used as a divination tool to align with the principles of Feng Shui, the compass evolved into a practical navigational instrument. Consisting of a magnetized needle floating on a plate, the compass allowed sailors and explorers to determine their direction accurately, even in the vast expanses of the open sea. This groundbreaking invention revolutionized maritime exploration, enabling the Chinese to embark on ambitious voyages of discovery during the Tang Dynasty. The compass not only facilitated trade and navigation but also played a vital role in the development of cartography, influencing the accurate mapping of lands and the creation of navigational charts. The impact of the compass on global exploration and trade cannot be overstated, as it opened new horizons for human civilization.

Ancient China's mastery of porcelain making represents an exquisite art form that has captivated the world for centuries. The invention of porcelain is attributed to the Tang Dynasty, although earlier forms of ceramic art existed. The secret lay in the use of kaolin clay, which possessed exceptional properties when fired at high temperatures. Chinese artisans developed unparalleled expertise in manipulating kaolin and crafting delicate, translucent vessels adorned with intricate designs. Porcelain, with its beauty, durability, and versatility, quickly became highly sought after and influenced cultural exchange along the ancient Silk Road. The trade of porcelain enhanced international connections, fostering the exchange of ideas, aesthetics, and technology. Even today, Chinese porcelain remains a symbol of exquisite craftsmanship and cultural heritage.

The ancient inventions of China continue to leave an indelible mark on human civilization, showcasing the remarkable ingenuity and creativity of the ancient Chinese people. The invention of paper revolutionized communication and education, providing a medium for the exchange of ideas and the preservation of knowledge.

Gunpowder, originally intended for medicinal purposes, transformed warfare and had far-reaching implications for science and entertainment. Moveable type printing revolutionized the dissemination of information, paving the way for the printing revolution that followed. The compass opened new horizons for exploration and trade, while porcelain exemplified the beauty and mastery of Chinese craftsmanship.

These inventions not only shaped ancient Chinese society but also had a profound impact on the development of global civilization. As we marvel at the tales of China's ancient marvels, we are reminded of the enduring legacy of human innovation and the transformative power of ideas.

The Chinese way – innovative way of transaction

Immaculate Heart of Mary College, Luk, Pui Ka Scarlett – 13

Nowadays, our lives are inseparable from money, but have you ever thought about how it was invented? The invention of paper money in ancient China is a remarkable milestone in the history of currency. This essay explores the origins, development, and significance of paper money in ancient China, as well as its latest developments with high-tech support, and the implications for the economy and culture of China.

It is interesting to know that the first object used as currency in ancient China was seashells. It then evolved to knife-shaped, spade-shaped, and ring-shaped coins, until the widespread usage of round bronze coins with a square hole in the center around 2,000 years ago. The roots of paper money can be traced back to the Tang Dynasty (618–907 AD) in ancient China. Initially, the Chinese government issued promissory notes known as "jiaozi" to be used as a medium of exchange. These notes were backed by the government's promise to redeem them for coins or other valuable commodities. The introduction of paper money aimed to address the inconvenience of carrying heavy coins and facilitate long-distance trade.

The Song Dynasty (960–1279 AD) witnessed significant advancements in paper money. The government initiated the production of promissory notes, known as "jiaozi" or "exchange certificates," which were redeemable for goods or services. These notes were issued by regional governments and private merchants, leading to a proliferation of different currencies across the country. During this period, the central government established a system of paper money backed by copper coins. Merchants could deposit copper coins, and the government's backing of paper money ensured its stability and widespread acceptance.

The introduction of paper money revolutionized the Chinese economy in several ways. Firstly, it facilitated trade and commerce by providing a convenient and lightweight medium of exchange. Carrying large quantities of coins became unnecessary, reducing the risks associated with theft and transportation.

Paper money also allowed for the expansion of long-distance trade, enabling connections with other countries and facilitating cultural exchange. Previously, trade between regions was hindered by the scarcity and inconvenience of coins; with paper money, merchants could easily engage in transactions across vast territories, stimulating economic growth and regional integration. Moreover, the use of paper money fostered a sense of trust and stability in the Chinese economy. The government's backing of paper money ensured its value, and the widespread acceptance of this currency led to an increase in confidence among traders and consumers alike. Furthermore, the invention of paper money brought significant cultural implications. It symbolized China's advanced technological achievements and demonstrated the country's ability to innovate in various fields. The development of paper money also showcased China's economic prosperity and contributed to its reputation as a global economic power.

However, paper money has become the digital form of money in the recent decades. The future of digital money in China holds immense potential and is poised to revolutionize the country's financial landscape.

In recent years, technology has revolutionized financial transactions. Online payment methods such as "Alipay" and "WeChat Pay" have gained significant popularity, providing convenience and efficiency to consumers and businesses alike. However, as with any technological innovation, online payment systems come with their own set of advantages and disadvantages, such as security risks and limited acceptance and accessibility.

Both the government and business corporations have invested a significant amount of money and effort to advance technologies in order to provide smooth and safe transaction platforms that can be widely used. The well-developed monetary system, including electronic payment platforms, has influenced consumer behavior and greatly enhanced trading efficiency. Nowadays, consumers enjoy the benefits of online shopping, and business owners are no longer required to own or rent physical shops to sell their products. This transformation has successfully shifted people's lives towards digital trading environments. Additionally, the development of financial technologies (fintech) has imposed sophisticated security controls and greatly simplified the process of financial transactions.

Moreover, with the latest technological advancements, virtual currency has become increasingly popular. However, without mature technological support and regulations to control virtual currency, it has yet to be fully recognized by governments in many countries, including China.

One key development is the introduction of the digital currency electronic payment (DCEP), also known as the digital yuan. The digital yuan is a central bank digital currency (CBDC) that is backed by the People's Bank of China (PBOC). It aims to provide a secure and efficient means of conducting transactions, reducing reliance on traditional cash and improving financial inclusion.

With the adoption of the digital yuan, China is likely to witness a shift towards a cashless society. The digital currency can be easily transferred and used for transactions, eliminating the need for physical cash. This will lead to greater convenience for consumers and businesses, as well as improved transparency and traceability in financial transactions. Furthermore, the digital yuan has the potential to reshape China's economy by promoting financial innovation and inclusion. It can facilitate access to financial services for the unbanked population, enabling greater participation in the formal economy. Digital currency can also provide a platform for the development of new financial products and services, such as smart contracts and decentralized finance (DeFi) applications.

In addition, the digital yuan can strengthen China's position in the global economy. As the world's second-largest economy, China has the opportunity to leverage its digital currency to enhance cross-border transactions and promote international trade. The digital yuan can streamline payment processes, reduce transaction costs, and mitigate the risks associated with traditional currency exchanges.

However, the widespread adoption of digital money in China also raises concerns about data privacy and surveillance. The Chinese government's oversight of digital transactions could potentially infringe on individual privacy rights. Striking a balance between convenience, security, and privacy will be crucial for the successful implementation of the digital yuan.

In conclusion, the future of digital money in China holds immense potential for transforming the country's financial landscape. The introduction of the digital yuan and the shift towards a cashless society will bring about greater convenience, financial inclusion, and economic opportunities. However, addressing concerns related to privacy and surveillance will be vital for ensuring the successful adoption of digital money in China.

The future of digital money in China holds immense potential and is poised to revolutionize the country's financial landscape. China has already made significant strides in digital payment systems with the widespread adoption of mobile payment platforms like Alipay and WeChat Pay. However, the future holds even more exciting possibilities.

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However, the widespread adoption of digital money in China also raises concerns about data privacy and surveillance. The Chinese government's oversight of digital transactions could potentially infringe on individual privacy rights.

Striking a balance between convenience, security, and privacy will be crucial for the successful implementation of the digital yuan.

In conclusion, the future of digital money in China holds immense potential for transforming the country's financial landscape. The introduction of the digital yuan and the shift towards a cashless society will bring about greater convenience, financial inclusion, and economic opportunities. However, addressing concerns related to privacy and surveillance will be vital for ensuring the successful adoption of digital money in China.

The well-developed digital payment platforms, as well as the invention of artificial intelligence, have enabled a cashless lifestyle for us. It is uncertain if people will still need paper money in the future, but we must maintain the integrity of our spending, whether we are using paper money or digital payment. It is also important for us to recognize the long historical development of paper money and the positive impacts it has brought to improve our lives as we should learn from the lessons in the ancient world so as to appreciate the past glory and better the future generations with modified technology in the future.

New Tales of China's Inventions

Immaculate Heart of Mary College, Tang, Nok Yi – 14

Nowadays, many schools have a policy called 'BYOD' (Bring Your Own Device), which means students bring their iPads or laptops to school and use electronic devices to replace physical books. Although we mostly use electronic devices instead of paper nowadays, paper is still a necessary part of our daily lives. Exam papers, notebooks, storybooks, music scores, and even certificates require paper for writing or printing. This highlights the importance of paper. However, despite using it every day, do we really know much about paper? Keep reading my article to find out more information about it!

Some people may have claimed that papyrus, a plant-based writing sheet, was the earliest form of paper. However, this is incorrect. The first documented paper-making process was actually in China during the Eastern Han period by a person named Cai Lun. Today, Cai Lun is credited with inventing paper. The earliest surviving paper fragment was found in Fangmatan, Gansu province, and was likely a part of a map. Paper is created by combining milled plant and textile fibers. Cai Lun's innovation involved using mulberry and other bast fibers, along with fishing nets, old rags, and hemp waste, to reduce the cost of paper production. This plant-purée conglomerate, produced by pulp mills and paper mills, was used for writing, drawing, and making money.

In ancient times, people used to write on bamboo or pieces of silk called "chih." However, silk was expensive and bamboo was heavy and inconvenient to carry. As a result, Cai Lun came up with the idea of making paper from tree bark, hemp remnants, cloth rags, and fishing nets. He invented paper, which was initially known as the "paper of Marquis Tshai." The production process involved pounding and stirring rags in water, collecting the matted fibers on a mat. During the Tang dynasty, another type of paper called rattan paper emerged, but it declined due to the specific growing areas required, slow growth, and long regeneration cycle. Other well-known types of bark paper, such as Chengxi Tang Paper, were also produced during the Five Dynasties and Ten Kingdoms period.

The invention of paper gradually spread throughout the world. In the 8th century, Chinese papermaking reached the Islamic world, replacing papyrus. In the 11th century, papermaking was introduced to Europe, replacing animal-skin-based parchment and wooden panels. In Spain, papermaking was further refined with the use of waterwheels in paper mills. In the 19th century, wood-based papers were invented.

As the invention of paper progressed, people continued to improve and develop new papermaking techniques. This was driven by the recognition of paper's importance in communication. In the past, when telephones and electronic devices didn't exist, people relied on paper to write letters and report news about society. Paper was the primary means of communication. Paper was also crucial for deaf-mute individuals, as there was no technology available to help them communicate with others. Although devices were introduced in the 15th century, they were expensive and not accessible to everyone.

Even today, ordinary people cannot afford the price of such devices. This highlights the ongoing importance of paper. Whether it's printing exam papers, drawing, taking notes, printing books, or producing musical scores, we still rely on paper. As you can see, paper continues to be used by us, both in the past and the present.

However, we often hear calls to use less paper. There are activities and discussions focused on saving our Earth, considering the rapid increase in air temperature due to global warming. Using excessive amounts of paper contributes to global warming. To address this, people have turned to electronic devices such as iPads, mobile phones, and laptops to replace paper. This allows us to reduce paper usage and offers greater convenience. We can now communicate with our friends and family anytime and anywhere. It also reduces the time it takes to receive a letter, allowing us to stay updated on societal events. Furthermore, we no longer need to buy newspapers, resulting in cost savings.

Thanks to the development of electronic devices, we can now do most things online, including submitting homework, making purchases, chatting with friends and family, attending lessons, and making new friends. However, have you ever heard of a service called "online tomb sweeping"? This service, provided by the government, allows us to perform tomb sweeping rituals online. You might wonder why the government would launch such a service. As you know, people traditionally burn paper offerings for their ancestors during tomb sweeping rituals, which can be difficult to clean and may be perceived as wasteful. Therefore, the government introduced this policy to enable people to continue the tradition of tomb sweeping while also being more environmentally friendly. Additionally, it helps preserve the cultural significance of tomb sweeping.

Currently, there are many alternatives to paper. However, paper remains the most important to us. We should take pride in its invention. Paper and the Earth are precious gifts given to us by our ancestors. No matter how many inventions come along, the invention of paper still stands as one of our greatest achievements. Therefore, it is our responsibility to protect the Earth so that future generations can understand the significance of paper's invention.

Looking ahead, the future of paper as an invention holds both challenges and opportunities. On one hand, the digital age continues to advance, and we are witnessing a shift towards paperless communication and documentation. With the increasing ubiquity and convenience of electronic devices, there is a growing emphasis on reducing paper consumption to minimize environmental impact and promote sustainability. This trend is likely to persist, with more organizations and individuals opting for digital alternatives such as e-books, e-documents, and online platforms for communication and collaboration.

Furthermore, advancements in technology may lead to the development of innovative paper products that are more sustainable and ecologically friendly. Researchers are exploring alternative sources of fibers for papermaking, such as agricultural waste or fast-growing plants, to reduce the reliance on conventional wood pulp. Additionally, there is ongoing research and development in the field of recyclable and biodegradable papers that can help minimize waste and contribute to a circular economy.

In conclusion, while the digital age has brought about substantial changes in how we communicate and document information, paper still holds its place in our society. The future of paper will likely involve a balance between digital alternatives and the continued utilization of paper for specific purposes. As technology evolves, we can expect to witness advancements in sustainable papermaking practices and the emergence of new, environmentally friendly paper products. Ultimately, the future of paper will be shaped by our collective efforts to embrace digital innovation while also recognizing the unique value that paper brings to our lives.

The Gifts, the Inventions

Inmaculate Heart of Mary College, Ying, Cheuk Kiu Cheryl – 14

Times have gone by, capturing precious moments. Across the passage of time, history has bequeathed humankind countless gifts, guiding global progress toward brighter horizons. China, as the top origin of Patent Cooperation Treaty (PCT) filings with 70,015 in 2022, according to the World Intellectual Property Organization (WIPO), has achieved remarkable innovation in the past, including the four great inventions. Through pioneering the renowned four great inventions, our ancestors exhibited an ingenuity that yet inspires. Seized by wonder, I embarked on study to answer queries lingering in the mind. Papermaking and gunpowder, pioneered in the ancient China, remain seminal gifts for today's world.

To trace paper's first steps, we journey to the second century BC. At this time, Baqiao paper – believed the earliest developed within ancient China. Though people first thought that the soft and flaky from hemp and ramie fiber was the main source for paper making, yet time revealed its primacy mistaken. In later decades, the truth emerged: An earlier sheet, part likely of a map, excavated at Fangmatan in Gansu province, proven to date from Han Dynasty's first imperial era, 179–141 BC. This sole surviving fragment stands as testimony to paper's deeper roots in those fertile soils whence China's wisdom and wonders have long sprung.

When considering the individual most renowned for their role in paper's chronicles within China and beyond, I am sure no one would deny Cai Lun made the greatest impact. As the pioneer credited for advancing papermaking techniques through ingenuity and toil, Cai Lun helped establish the material as a widely-used medium for sharing knowledge across communities. His innovations laid the foundations for paper to spread widely as a means of spreading literacy. Cai Lun's place as a leader in this field is firmly cemented in historical records, ensuring remembrance of his pivotal contributions for generations to come.

Cai Lun, a man who once served within the emperor's inner chambers, was chosen in 89 CE to hold high rank during the years of harvest and prosperity under Han sovereign Hedi's guiding hand. Many may know that Cai Lun made extraordinary contributions to improving the papermaking technology of his time. Before then, people wrote on bones or bamboo, heavy, bulky, and inconvenient to transport or write on. A type of paper called "bo" made from silk then appeared as ancient Chinese were inspired by silk reeling. But production was very expensive as material supply could not meet demand. Fortunately, this situation changed through Cai Lun. In his pursuit of technological innovation, he wisely employed cost-effective materials such as bark, rags, hemp heads, and fish nets to create paper, resulting in a significant reduction in the overall expenses associated with the papermaking process which benefitted us all.

Furthermore, enhanced papermaking brought many benefits across various fields. In culture, after the Han Dynasty, paper's presence vastly advanced book copying and cultural dissemination. In literature, paper played a crucial role in early Chinese written culture, and a strong reading culture seems to have developed quickly after its introduction, according to Timothy Hugh Barrett, now Professor of East Asian History at the School of Oriental and African Studies, London. Hence, individual collections of literary works increased in following centuries.

For gunpowder, let's begin in the Eastern Han Dynasty, when Wei Boyang, "the father of alchemy," mentioned a substance with properties similar to gunpowder. In Cantong qi, a Taoist text on the subject of alchemy written by him, he described a mixture of three powders that would flutter vigorously. It records a chemical combination

experiment of sulphur and mercury. Henceforth, during the Six Dynasties period, The "Thirty-six Water Methods" listed 32 prescriptions containing saltpeter. Furthermore, the Taoist philosopher Ge Hong outlined gunpowder's ingredients in his remaining works, Baopuzi ("The Master Who Embraces Simplicity"). In the "Inner Chapters" (neipian) of Taoism, he also noted experiments using heated saltpeter, pine resin, and charcoal among other carbon materials to create gold but instead brought out a purple powder and arsenic vapors. Later, in 492, Taoist alchemists stated saltpeter as one of gunpowder's most vital elements. This shows ancients' perseverance exploring the unknown.

Thereafter, in the Tang Dynasty, Taishang Shengzu Jindan Mijue, a book from Qing Xu, an alchemist, cited the "Fu Huo Alum Method", mixing saltpeter, sulphur, and carbon-containing Aristolochia to make primitive gunpowder. A similar case appeared in Zhenyuan miaodao yaolie by Zheng Siyuan around 50 years later, saying "Some have heated together sulphur, realgar, and saltpeter with honey; flames result, so their hands and faces, or even the whole house are burnt.". This proved people in the mid-9th century already knew mixing those ingredients' aftereffects. Moreover, alchemists then called this mixture "Huo yao" (fire medicines), attempting to make awareness it was a side effect of elixir quests.

In the future, we can reflect on the enduring legacy of Chinese papermaking and gunpowder inventions and find inspiration for our own innovative, sustainable, and efficient advancements. In the realm of papermaking, we can consider how we can contribute to improving the eco-friendly, versatile, and cost-effective nature of the process. By exploring alternative raw materials, such as agricultural waste or recycled fibers, we can reduce our reliance on traditional sources like trees and make a positive impact on the environment. Additionally, we can embrace technological advancements and automation to streamline production methods, making papermaking more efficient and environmentally friendly.

Moreover, in the digital age, while digital platforms have gained prominence, we can recognize the enduring demand for high-quality, sustainable, and innovative paper products in various industries. By conducting research and development, we can contribute to the creation of eco-friendly papers that meet the changing needs of modern society. Innovations in paper coatings, finishes, and recycling technologies can further enhance the versatility and sustainability of paper as a medium.

In the realm of gunpowder inventions, humans should be more aware of using such a great invention with safety, precision, and efficiency. We must carefully consider the ethical implications and responsibilities associated with these powerful, potentially life-altering inventions. By conducting responsible research into new propellant materials and formulations, we can contribute to improving the performance of firearms and explosive devices while prioritizing safety. Additionally, we can explore the potential of additive manufacturing (3D printing) and nanotechnology to develop innovative and groundbreaking gunpowder-related products. However, we must always keep in mind the importance of responsible usage and the need for regulations surrounding firearms and explosives.

With good intentions and awareness, the great inventions will continue to shine in human history, helping us develop our world in advanced technology as well as peaceful relationships.

Paper

Kellett Senior School, Chen, Andre – 13

Paper, a simple yet revolutionary invention, holds profound significance in Chinese history. From its invention during the Eastern Han Dynasty to its widespread use in the modern world, paper has shaped human communication and knowledge dissemination. This essay explores the historical origins of paper, its cultural significance, and its enduring impact on society.

Papermaking was pioneered by Cai Lun during the Eastern Han Dynasty in China. Before this invention, people had to write on bamboo and wooden slips, alternatives such as writing on silk and cloth, which were too expensive for widespread use. Attempting to resolve this problem, Cai Lun boiled bamboo, hemp waste, old rags, fishnets and tree barks to create a pulp, which was then beaten and mixed with water. The pulp was then pressed and dried, resulting in the creation of paper. The invention of paper revolutionized the way people recorded information and communicated. It was more lightweight, accessible, and durable compared to the materials previously used.

The cultural significance of the paper could not be overstated. It became an essential medium for painting, literature and calligraphy. The smooth texture and absorbent nature of the paper allowed the ink to flow gracefully, capturing the essence of the artist's brush strokes. The art of calligraphy flourished, as paper provided a canvas for artistic expression and creativity. Paper also played a pivotal role in the preservation and dissemination of Chinese culture and traditions, serving as a vessel for ancient texts, poems, and physiological teachings.

With the advent of paper, communication and knowledge dissemination underwent a transformative shift. Paper allowed for the mass production of books, making information more accessible to a wider audience. The spread of papermaking techniques to other parts of the world enabled the exchange of ideas and facilitated cross-cultural learning. Furthermore, the invention of moveable printing during the Tang Dynasty, combining paper and printing, paved the way for the efficient reproduction of texts, revolutionizing education and scholarship.

Despite the digital age, the paper continues to hold significance in various fields of modern life. It remains an integral part of traditional arts and crafts such as origami and paper-cutting. Paper is also widely used in industries such as packaging, stationary, and art supplies. Moreover, the tangibility and tactile experience of paper continues to resonate with people, as it provides a sense of connection to history and tradition.

Paper stands as a testament to the ingenuity of ancient Chinese inventors. Its historical origins, cultural significance, and impact on communication and knowledge dissemination shaped the world we live in today. From calligraphy and literature to the mass production of books, paper has left an indelible mark on human civilization. As we navigate through the digital era, let us not forget the enduring legacy of this remarkable Chinese invention.

Cuju

Kellett Senior School, Ryo, Desmidt – 13

Did you know that around 3.5 billion people watch football and about 250 million people play the sport around the world? People think that because football is such a big sport in Europe that it must originate from there, but it actually came from the other side of the world, China. Football was first invented in the Han Dynasty, and this sport was originally called Cuju which directly translates to “kick ball”. This sport was created as entertainment for the wealthy and royalty and matches would be played in the royal palace. Cuju was also played to keep military officers healthy and physically ready at all times; the sport trained them to be very athletic and have good hand-eye coordination so they were better fit for battle. Since Cuju trained the athleticism and skills of soldiers, it became an important part of military education.

Cuju's popularity extended beyond China, spreading to neighbouring regions and influencing the development of similar ball games throughout Asia like *kemari* and *chuk-guk* from Japan and Korea, respectively. People who played Cuju would have to dedicate two to three hours of their time as it sometimes took this long for a team to win a match. Cuju has always been played on a rectangular field, but originally, the goal post was positioned in the middle of the field. It later evolved with two goalposts situated at each end of the field, similar to today's game. In the first version of the game of Cuju, a team scored a point whenever the ball went through the goal. The other team had the opportunity to score as well but not if they dropped the ball on the floor. The players showcased their agility, skill, and teamwork, and various techniques to score. Unfortunately, Cuju ended up collapsing as a game during the Ming Dynasty when the Hongwu Emperor, the first Ming ruler, banned Cuju because he thought that it was a distraction from work and military training. The 2,000 year old sport was neglected and started to fade away.

However, there is documentation of indigenous people playing a form of football. References of the sport's influence come from European explorers. For example, in 1586, European explorer John Davis went ashore in Greenland to introduce a form of football to the indigenous people. Later records show that the Inuits had a game played on ice called Aqsaqtuk which was basically football on ice. Other accounts of football in indigenous cultures have been found in Virginia, U.S.A and Victoria, Australia. Football made its way around the world with help from explorers who spread the love of the game to everyone they met.

Organised football began in England in the 1850s, and the first football club called Sheffield United was born. A few years later, the Football Association (F.A) was set up in 1863. The F.A organised matches for players within England, but as the sport grew in popularity, the players wanted to be challenged by playing teams outside their country. The first international match set-up by the F.A was played between Scotland and England, although the players from Scotland were London-based Scottish players. This match was held at Hamilton Crescent in Glasgow, Scotland with around 4,000 people watching this exciting game which ended in a nil-nil draw. There were several of these kinds of matches organised by the F.A before more global matches were demanded. Back then, players had to travel long distances to get to the host country's field via vehicles or railway. It was quite the journey and dedication.

The Fédération Internationale De Football Association (FIFA) was established on May 21, 1904 by Belgium, Denmark, France, Germany, the Netherlands, Spain, Sweden and Switzerland to continue to spread the love of football worldwide. The matches fostered friendly relations between these countries and the game of football was changed forever. The first World Cup was held in 1930 in Uruguay and the host-country, Uruguay ended up winning and becoming the first World Cup champions. The World Cup is held every four years, and the last one in

2022 was hosted by Qatar and was won by the Argentinian team. Since FIFA was established, there have been many players that have been responsible for popularising the sport internationally such as Diego Maradona, Pelé, David Beckham, Ronaldo Nazário, Ronaldinho Gaúcho, Cristiano Ronaldo, and Lionel Messi. Some people say that they are some of the greatest players of all time. FIFA generated approximately US\$5.8 billion in 2022. Worldwide, football generates the most money with US\$50 billion.

Cuju, the ancient football game of China, holds a very special place in sporting history. Its original rules and roots, and its cultural significance have left an incredible impression on the development of sports. Cuju's influence can be seen in the evolution of football and its lasting impact on sporting traditions worldwide. The principles of footwork, teamwork, and goal scoring that were originally from Cuju laid the principles for the modern game we know and love today. The game has developed and evolved through centuries, and rules have been changed to challenge the players more over time. China's invention of the first version of football, Cuju, sparked interest, encouraged fitness, inspired billions of people around the world to play, spectate, and connect other fans around the world via online games and in person at the stadium, sports bars, schools, and homes. It is one of China's most significant inventions ever created.

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The Great Inventions that Shaped the Modern World

Korean International School, Chai, Max Thomas – 14

Many people may have famously heard the Four Great Inventions of the ancient Chinese civilisation, which includes papermaking, printing, gunpowder, and compass, but most do not know that there are many more inventions that has shaped the course of human history and civilisation. The major innovations and creativity that we see from modern China stretches back to a massive, rich history. From the development and advancements in communication to innovative discoveries in science and technology, Chinese inventors have left a massive mark in the modern world, and have had a profound impact to our daily lives and the development of our society as a whole.

Papermaking, which is the first in the list of the Four Great Inventions, started in ancient China during the Han Dynasty in 105 A.D. The process was created by a Chinese court official, Ts'ai Lun, who used rags as the raw material. This method was first a secret but it eventually reached central Asia, the Islamic world and Europe through trade and cultural exchanges. However, this process later on was replaced by using other plant materials including bark, bamboo, and hemp. This Chinese invention of papermaking has revolutionized numerous developments in administration, literature, education, and communication. This had played a major role in the recording and sharing of ideas, and later to the advancement of civilizations throughout the world. Even though this activity is largely becoming replaced by technology during the modern times, paper still continues to be a foundational aspect in our daily lives. In addition to this, students who are interested in many things related to paper can study a PhD in Pulp and Paper-making Engineering in a university in Nanjing!

Another important famous invention from China is printing, which is another invention in the list of the Four Great Inventions. This invention was yet another crucial moment. Invented around the 8th century A.D. during the Tang Dynasty, it involved a revolutionary technique of re-arranging and reusing individual characters, rather than the previous method, which is carving out entire blocks for each page. The impact of this invention was that this innovation made preparations for the modern printing process that we know today, which meant that books could be produced faster, cheaper, and placed in larger quantities. Larger amounts of books meant more knowledge spreading and passing through the minds of people all over the place.

When it comes to mathematical calculations, the abacus, was an important invention. This invention is outside of the Four Great Inventions, but has created a significant positive impact in the fields of mathematics. Which emerged in China approximately 2,500 years ago, it was a simple yet ingenious tool of mathematics and calculating that would greatly transform mathematical calculations. The Chinese abacus, or “Suan-p’an”, consisting of rows of beads or stones on rods, provided a practical and efficient method for performing calculations and arithmetic operations. Due to its design allowing for quick manipulation and accurate calculations, the abacus was a very useful tool in fields such as commerce. The practice of using this Chinese abacus was called “Zhusuan”, “zhu” meaning bead, and “suan” meaning to count, and it is widely recognized as the China’s fifth great invention as of recent times. By moving the beads, one can add, subtract, multiply or divide, calculate powers and roots, and even solve further degree equations. Because of fast calculations, convenience and powerful capabilities, the abacus has been called “the world’s oldest computer”. It was shown from historical records that Zhusuan spread throughout several countries in Asia, including South Korea, Japan, and Southeast Asia during the 16th century. Today, Zhusuan is widely used all over the world, and the invention of the abacus laid the foundation for the future developments in computing technology and the advancements of knowledge and problem solving in mathematics.

Another significant Chinese invention is porcelain. Porcelain is made by heating clay to high temperatures, and it is valued for its permanence, thinness and beauty. Originating in the Eastern Han Dynasty nearly 2,000 years ago, Chinese porcelain was highly prized around the globe, contributing to trade and cultural exchange. The invention has also greatly influenced global dining and tea-drinking customs. Porcelain has quickly become fresh and in demand, both for its functionality and aesthetic appeal, and its influence spread across the globe, shaping the world of pottery and fine art.

In conclusion, these ancient Chinese innovations and inventions have not only transformed technological and mathematical developments but have also shaped the course of human history. The significant impacts of the Chinese innovations extends beyond the fields of science and technology, but influenced economics, culture, and society on a massive, global scale. The legacy of the profound and remarkable inventions is evidence to the ingenuity and creativity of this civilization as a whole, continuing to inspire us and many parts of the world today.

The Tragic History of Gunpowder

Korean International School, Lau, Magnus – 12

Introduction

In China during the first millennium (years 1–1000), people are trying to make an elixir which extends people's lifespan. They accidentally invented gunpowder, also known as black powder, a low explosive which is then used in warfare later.

The powder is composed of three chemicals: potassium nitrate, sulphur and charcoal (carbon). The Chinese alchemist Wei Boyang described three powders which are the ingredients of gunpowder, since gunpowder is the only explosive known to humans that consists of three chemicals, they can fly and dance but he did not name these powders.

The early use of gunpowder

The story begins in ancient China. Early gunpowder is only flammable, but not explosive because they lack a certain chemical, potassium nitrate. Also known as saltpetre, It was harvested by boiling manure. During those days, gunpowder only contains 50 percent of potassium nitrate, which is too low to make it blow enemies up. But remember, gunpowder is flammable so it can still be made into devices that set the enemy on fire. So people developed incendiary, or in other words, fire-starting devices. The first of them are fire arrows. The (possibly) first use of fire arrows dates back to the year 904 in Southern Wu during the siege of Yuzhang.

Fire arrows then became a weapon that you don't have to shoot with a bow and uses gunpowder as a propellant—rockets. The Chinese name for this weapon is 火箭, which literally means “fire arrows”. This new variant of the older fire arrow was invented in the year 969 by two generals named Yue Yifang and Feng Jisheng according to the Song Shi. Then it was shown to the emperor in the year 970 and Jisheng was rewarded.

Later on, Gunpowder is also introduced to the Chinese navy. In 1229 decreed that all warships must have a trebuchet (which is also first used in China) for lobbing bombs (which the explosive is gunpowder) but the earlier weapons are still used. When in 1159, a fleet of Song warships were caught in a Jin fleet. Gunpowder arrows were shot in every direction and set enemy ships on fire. But that's not all. The Song armed forces took another victory in 1161 for launching bombs at a Jin Transport fleet and drowning the crew into the rushing Yangtze river. And during the Jin siege of Xiangyang, Song's gunpowder weapons did destroy Jin trebuchets and manage to deter the advancing army.

Then came something truly revolutionary: the hand cannon. This is considered as the ancestors of modern firearms but they are defined as “true guns” because they don't have any projectiles. That's the bullet or the cannonball or the shell. Afterwards shrapnel were added and they were blasted out, but still only referred as “co-viatives”.

The spread and development of gunpowder

The Mongol empire is the second largest empire after the British empire and in history the Mongols did have a great influence on the evolution of gunpowder. Their wars helped with the development of the military in east asia. When the Mongols invaded Japan, the Japanese created a scroll. And in the scroll there is a painting depicting a bomb.

Descriptions of the Mongol invasion also mentioned a cannon that blasts out two to three thousand bullets. It is believed that it is the Mongols which introduced gunpowder to the west. But this is just one theory on how gunpowder ends up in Europe. Another popular theory is that gunpowder made its way to the west through the silk road. During the 13th century, gunpowder reached Europe and the “true gun” was invented. The Europeans discovered that by wetting gunpowder and forcing the paste through a sieve they can make uniform and fine particles that were more powerful per unit of weight. The Europeans call this corned gunpowder. During the late 14th century, cannons were widespread among armies in Europe and the trebuchet, a siege weapon which originated in China (as mentioned earlier), is losing its place in the battlefield.

Meanwhile, back in Asia, cannons were also used in wars in Southeast Asia. Huge quantities of gunpowder was found in the Khmer empire (nowadays Cambodia, Laos and Thailand and Burma) and by the end of the century, such firearms were also used in Vietnam. The Mongols brought the invention to Indonesia in the form of cannon. That's 炮 if you're chinese. The use of handgonne or hand cannon is recorded in Java in 1413, the knowledge of making “true firearms” came later. It was brought by Muslim traders from west Asia, probably mostly Arabs but the year of introduction remains a mystery.

Then, there came the Portuguese and they defeated the Malacca Sultanate (which is now modern day Malacca state of Malaysia and northwest Sumatra). Their influence helped create a new type of firearm, the istinggar.

In Korea, a early rocket artillery was developed and it was called the Hwacha (화차 in korean or 火車 in hanja). The weapon was used in defence of the Korean peninsula against the Japanese invasion in the 1590s. It was a rocket-propelled arrow fitted together on a cart and it can fire more than 100 rows at once.

But weaponry is not the only use of gunpowder. Back in China where gunpowder was invented, it was used for hydraulic engineering.

Blasting by gunpowder is one of the technique that improved the Grand canal at the waterway it crosses with the Yellow river and in France, gunpowder helped with the construction of Canal du Midi.

During the 15th to the 16th century, three superpowers arose in west Asia. That is the Ottoman empire, which is modern day turkey some part of the Saudi Arabia, the balkans and the northest part of Africa. The Safavid empire, modern day Iran and Mughal empire, which is modern day India. They have such a strong military and they conquered neighbouring cities with their rifles and cannons (both weapons use gunpowder and this is the reason why the term “ Gunpowder empires” came in). These superpowers reached their peaks between the 16th and 17th century. But these superpowers gradually collapsed due to several reasons such as they lacked in military technology. The spread of gunpowder to other armies left them outdated. Also, the governments inability to run the country properly caused civils wars that weakened their military.

Gunpowder was also applied to mining which helps blast rocks into smaller pieces. The earliest record of gunpowder used in mining was in Hungary. This technique was introduced to Britain in 1638 by the germans.

Gunpowder was used in railway construction for example, the 12.9 kilometre-long Mont Cenis tunnel in Europe took 13 years to complete starting in 1857. Even with the magical and trusty gunpowder the progress was still painfully slow, at 25 centimetres a day until the jackhammer was invented and speeds up the work.

The use of gunpowder during the American civil war

During the American civil war, in which the Union States were fighting against the Confederates, British India was the main source of potassium nitrate for gunpowder for the Unions. During the Trent Affair, in which the Unions captured two Confederate envoys from a British ship, the supply was threatened.

The decline of gunpowder

A disadvantage of gunpowder is that once burned, it will create a lot of smoke and fog up the battlefield. So in 1889, the British army replaced gunpowder with another low explosive called Cordite as propellant in the military. During the Great war, another explosive was used as military propellant, nitrocellulose. It looks a bit like cotton and was used in firearms and artillery. Cordite was used in the Second world war and the gunpowder, or black powder, which was used in countless wars in the mediaeval ages, was slowly replaced by other explosives that are better and produce less smoke, such as smokeless powder.

Conclusion

In search of elixir for extending lifespan humans created something else. Humans then find the dark side of gunpowder and use it for weapons of war.

Humans gradually improved their inventions but they eventually found it handy killing each other. During the Second world war, Germany developed the world's first long range ballistic missile and more than a thousand of them struck London. And a few years later, scientist created the nuclear bomb and were dropped on Hiroshima and Nagasaki and resulting approximately 200,000 dead. But a few thousand years ago, there's no such thing. It's the world's first rockets and simple explosive devices which contribute to ballistic missiles and thermonuclear bombs, but an invention does have other uses other than blowing people up. Gunpowder is used in beautiful and dazzling fireworks. The harmless and fun that lights up the sky at new year. Though almost no modern weapons use gunpowder as an explosive or propellant, It's true that gunpowder has many enteraniting and non-harmful purposes, but the ancient chinese invention had changed our history and our conflicts. It is true that an accidental discovery can influence millions of lives for centuries.

Innovation and Influence

Maryknoll Convent School (Secondary Section), Wong, Yui Gi Gigi – 12

China, our home, has a long and impactful history of vast inventions that have greatly influenced the whole world. Besides the four great inventions – paper making, printing, gunpowder and the compass, ancient Chinese inventors have contributed to numerous and remarkable creations. For example, Yi Xing a Buddhist monk in 725 A.D. has invented the world's first mechanical clock which was powered by dripping water on a wheel that made one revolution in 24 hours. From ancient times till this present day more and more groundbreaking inventions from China have emerged in recent years which showcased the country's continued legacy and technological advancements.

With the development of high-speed rail technology, China has completely transformed the transportation industry. China has constructed and operated an extensive high-speed rail network that connects the nation's main cities and regions in recent years. China's high-speed rail network is well known for its effectiveness, dependability, and

swiftness. It has not only revolutionized domestic travel, but it has also encouraged other nations to fund comparable infrastructure initiatives.

With climate change still approaching, China has become a global leader in the technology related to renewable energy. The nation has made significant increases in solar panels and wind power. They have been exported to countries across the globe, helping to expand solar energy capacity worldwide leading to a substantial increase in clean energy production. China's renewable energy innovations have not only aided in combating climate change but have also sparked new job opportunities and economic expansion. Additionally, Chinese businesses are now outstanding players in the international renewable energy market, exporting their technologies and expertise to other countries.

As high technology keeps developing, E-commerce and mobile payment systems have grown rapidly in China, driven by businesses like Alibaba. These platforms have transformed the way individuals shop and do financial transactions. Chinese consumers may now buy goods and services with a few touches on their mobile devices because to the increasing usage of smartphones. In addition to revolutionizing the retail sector, this innovation has given entrepreneurs and small companies new chances to prosper in the online market.

In the areas of robotics and artificial intelligence (AI), China has achieved impressive progress. In terms of creating AI technologies, including facial recognition, natural language processing, and autonomous vehicles, Chinese researchers and businesses are leading the way. The nation's aspiration to lead the world in AI has stimulated innovation and drawn people from across the globe. China has made significant strides in robotics, resulting in the creation of advanced humanoid robots and automation systems that are transforming sectors including manufacturing and healthcare.

China has a long history of invention, and it has made outstanding contributions to many different sectors in the current century. China's latest innovations demonstrate the nation's dedication to innovation and its influence on worldwide technical breakthroughs, ranging from high-speed rail and e-commerce to renewable energy and aluminum. These fresh innovation stories from China are evidence of the country's inventiveness and its power to influence the future.

Unearthing China's Hidden Gems of Inventions

Marymount Secondary School, Ip, Agnes Nga Chi – 13

From culinary delicacies to groundbreaking advancements in technology and infrastructure, China has a rich history of creativity, innovation, and originality. The Four Great Inventions of China are rather well-known, but there is more and it makes for a rich tapestry of imagination and ingenuity that transcends time. Chinese creations stand as a testament to the nation's resourceful and delicate civilisations. Join me today on an enthralling journey as we unravel the lesser-known stories of Chinese inventions, past, present, and future, which have shaped our modern lives.

Unbeknownst to most, nail polish, a staple of beauty routines today, finds its origins in ancient China. Dating back over 500 years, it was a symbol of status. Red, black, and yellow were very popular colours as they symbolised prosperity, affluence, and status. The technique later travelled across India, Africa, and the Middle East, where they continued to inspire in their new forms of nail polish. Fast forward to the present, nail polish has evolved into a global industry, inspiring countless brands, trends, and techniques. Evolving from a symbol of status to a form

of self-expression, the development of nail polish owes its origins to the nail adornment that began in ancient China and spread across the world.

Another Chinese invention that most might not know about is the mechanical clock of the Song Dynasty, which revolutionised timekeeping. The first clocks were driven by water mechanisms, introducing the idea of accurate time measurement. Soon, its precision influenced the development of contemporary technologies in the growth of timekeeping devices worldwide. Today, the mechanisms of these ancient Chinese inventions continue to shape timekeeping in an expansive array of industries, helping people across the globe connect through time. The synchronisation of time across various devices and networks is an essential aspect of modern technology, and its roots are indebted to the Chinese invention of the mechanical clock.

The origins of flamethrowers can be traced back to ancient China. The early form of it was known as the 'Fire Lance' around the 10th–12th century. It utilised a bamboo tube filled with gunpowder and ignited projectiles, projecting flames toward enemy forces. Today, flamethrowers have found applications in different aspects of our daily lives, for example, in weed control. By directing it towards unwanted vegetation, farmers can remove weeds without using any chemicals. Therefore, this minimises the environmental impact. This technology can also be applied in entertainment. In events such as circus shows or performances, they add a visual element and create dramatic effects, captivating adults and children alike.

Football, the most popular sport on the planet, actually originates from ancient China. While the ancient Chinese version, cuju, is a bit different from the modern one we know today, its influence can be seen in a vast array of aspects. Its roots were set in the early Han Dynasty and served as a recreational activity, as well as military training. The ancient Chinese football game laid the foundation for modern football and has driven sports technology to advance, popularising it throughout the world. Now, it has spread even further to the most secluded countries in the world with variations of it ranging from Australian football to rugby, showing its dominance in the sports society.

Chinese history is rich with remarkable inventors who excelled in creativity, and two have made significant contributions to their respective fields. Empress Leizu, known as the Silk Empress, discovered the secret of silk production. She observed how silkworms spun their cocoons, realised that their silk could be woven into fine fabric, then experimented with different techniques to refine the silk production process and even developed methods to raise silkworms in controlled environments. Her invention not only revolutionised the textile industry but also brought immense wealth to China since it was traded along the Silk Road which connects the East and West. The silk fabrics have captivated the world and spread Chinese culture and craftsmanship far and wide. Even today, the legacy of the Empress continues as China remains one of the largest producers of silk, and Chinese silk is still admired for its quality and beauty.

Another great Chinese inventor was a skilled architect and engineer, Lu Ban, who was named the Father of Chinese Carpentry. He created tools through his innovative designs and construction techniques and revolutionised the field of carpentry and construction. One of his notable creations was the Lu Ban lock. This wooden lock was a mechanical puzzle designed to secure doors and chests. The lock consists of multiple interlocking pieces, which can only be disassembled in a specific sequence. His work serves as a practical way of securing value and has become a source of intellectual challenge and entertainment. The lock's popularity spread throughout China and beyond, even the Rubik's Cube shares a similar rotating layer and interdependent movements.

The legacy of Lu Ban and Empress Leizu can still be seen in ancient temples, palaces, and traditional homes that continue to stand as testaments to their skills and vision, demonstrating the problem-solving abilities and adaptability of Chinese inventors. The inventions not only transformed their respective fields but also had far-reaching impacts on Chinese society and the world.

Nowadays, we use technology to do everyday things. From transport to education, it has transcended our lives. Notable inventions from the past have contributed to the development of technology over the past few years.

For one, the innovation and experimentation behind nail polish reflect early human creativity and problem-solving skills. These skills are fundamental to the development of AI, as it involves complex problem-solving and creative thinking. The process of inventing flamethrowers can be seen as a distant ancestor to the principles of engineering and technology innovation that underpin AI development with its creative and strategic ways. Therefore, the past is within us even if we do not carefully see it.

I believe that education and the environment are the two areas that hold promise for future development, two that have yet to overextend throughout our time. Currently, in the education industry, AI advancements enable personalised learning experiences by analysing vast amounts of data. By tailoring the learning experience, virtual reality and augmented reality technologies can create immersive and interactive learning environments, enhancing engagement and knowledge retention. Moreover, AI-powered tutoring systems can provide customised feedback and adaptive learning paths, fostering student progress and achievement.

In the environmental sector, there have been breakthroughs in addressing sustainability challenges. AI-powered systems can examine complex environmental data, helping to monitor and manage ecosystems, predict natural disasters, and optimise resource allocation. Machine learning algorithms can assist in the development of renewable energy solutions, improving energy efficiency and reducing carbon footprints. It can develop smart systems for water management, monitoring air quality, and waste reduction, leading to more sustainable practices. With these new and modern inventions, China will be able to rapidly rise in the technology industry and influence foreign countries with them. They can give both convenience and efficiency to people across the world, and create a path for the next generation of inventors. However, these future inventions also come with challenges that need to be addressed.

Of course, with new inventions come new problems. It is vital to safeguard data and ensure compliance with privacy regulations to protect the rights and well-being of them. We also need to strike a balance between AI and human interaction as it is essential to maintain the role of teachers as mentors. Furthermore, we need to ensure that the calculations used in environmental research are free from biases. To avoid unintended consequences and ensure responsible environmental protection, we need to balance the benefits of AI-driven solutions with human judgement and ethical considerations.

Overall, China's history is marked by a rich tapestry of creativity and originality. From the iconic four great inventions to the lesser-known everyday items, they have shaped and influenced various aspects of our modern lives. These innovations have transformed our lives, and have greatly impacted the world for the better. The inventions have dominated the global industry, inspiring young minds around the globe, and further contributing to China's flourishing empire.

Looking towards the future, the fields of education and environment hold significant promise for Chinese inventors. Advancements in technology, particularly in artificial intelligence can focus on enhancing overall academic achievement, sustainable solutions, and environmental conservation. Nevertheless, we need to address the challenges and potential issues that come with these future inventions.

As China continues to innovate and push the boundaries of technological advancement, it is important to foster and cultivate a culture of responsible innovation. By embracing critical thinking and considering the broader implications of new inventions, China can continue to shape the world in transformative ways. The legacy of Chinese inventors, both the past and present, stands as a testament to our nation's remarkable resourcefulness, ingenuity, and enduring impact on a global scale.

New Tales of China's Inventions

Marymount Secondary School, See, Yu Yeng Seana – 12

China, the country I call home, is a global leader in various fields. Many of the world's inventions were invented by the Chinese, old and new, ancient and modern. With its long history as one of the world's oldest nations, China holds a lot of significance in the modern world.

Since the old days, China has been continuously developing and researching new technology for the benefit of mankind. Now is no different; China still has the same creativity as it had in the past and will continue to develop groundbreaking technology for the sake of the present and future.

Among the many fields of technological research that China is engaged in is weather modification, which can influence the weather, and is something the world pays attention to with climate change looming over us. China is one of the global leaders in this technology; how does the creativity of the Chinese play a role in this technology?

The effectiveness of weather modification is currently a topic of discussion among scientists, but the technology continues to develop and improve every single day. Weather modification, also called cloud seeding, has been practiced since long ago with the belief that it might just be able to stop natural disasters. However, China's pursuit has not ended with cloud seeding, it continues to explore more and more opportunities for the modification of weather.

Although two researchers from the US were the ones who created cloud seeding, the Chinese government was very eager about this development and have wholeheartedly supported it. China often did weather modification tests with the hope to one day balance out the territories in drought and those that have floods, showing the country's enthusiasm for the modification of weather. As China is a country that has the most potential in this field, some researchers and scientists speculate how far China might go.

Since China has a wide territory with different geography, China experiences various extreme weather like floods and droughts. This encourages China to investigate and research more about weather modification technology to balance the weather and decrease the chances of harm done by the weather.

Furthermore, China is a nation for whom agriculture is a major industry. People believe that weather modification technology could influence the weather, which could lead to fewer crops dying from unpredictable weather. Also, with controlled weather, China would be able to control the sunlight and water crops would be getting, countering the problem of unstable weather.

Even though weather modification is great, there are some concerns about the environmental impact of this technology on the environment. Some researchers contemplate whether the usage of this technology would put a strain on the environment. Since we are forcefully changing the world's weather, many are worried about what kind of effect it will bring.

Besides environmental concerns, some are also worried about ethical issues. For example, who should have access to this technology, and how should it be governed? Also, whether we humans would abuse or become over-reliant on this technology. But I am sure that along with the collaboration of society and various stakeholders, China would be sure to find a way.

With the technology's continued advance, the supernatural power of controlling the weather might not just be a pipe dream. In the future, we humans may have the ability to understand the functions of the atmosphere and its associated weather patterns, and along with technology that improves over time, we may be able to predict and manage extreme weather like typhoons, droughts, floods, etc. Even though we are not sure about the impacts of weather modification, this problem will surely be solved in the not-so-distant future.

Will weather modification add a new page to the history books? That is a story that only time will tell.

New Tales of China's Inventions

Marymount Secondary School, Suen, Hayley – 12

In our daily life, we always use a simple but essential object at least once a day: paper. We use it to draw pictures on, write letters on, or even fold paper aeroplanes with. But, have you ever heard about the history of paper?

Before the invention of paper, ancient Chinese people often used bamboo, wooden slips and silk for writing. However, bamboo and wooden slips were heavy, and silk was very expensive. These early materials certainly got the job done, but the people were constantly trying to find something better. Therefore, in the Eastern Han Dynasty (AD 105), the eunuch Cai Lun created the first type of paper through experimentation.

Cai Lun experimented with various materials such as tree skin, hemp heads, old cloth and fishing nets. He wanted to create a mash that could be formed into thin sheets for writing. With the power of perseverance, Cai Lun successfully developed a mixture that dries into a light and sturdy material. This mixture was called "Caihou paper" as it was named after Cai Lun, and it revolutionised the way Chinese society functioned. China had become number one in papermaking with the introduction of Caihou paper, and knowledge was able to spread more easily and widely.

But how did Caihou paper spread around the world? Well, after the invention of Caihou Paper, paper spread universally through trading and cultural exchanges with the help of trading networks such as the silk road. These trading networks made paper accessible to a wider population and enabled the exchange of goods and ideas between different regions. As papermaking techniques improved, people in Asia and beyond adopted Cai Lun's techniques to develop new types of paper based on their local needs. For example, in Japan, traditional washi paper was made from the fibres of the bark of the mulberry trees, which is a medium-sized tree that grows berries. While in India, handmade paper, also known as "kagaz" (which appeared in about the 3rd to 7th centuries), was made from materials such as cotton cloth or jute fibres. Each culture added its own techniques to papermaking, resulting in a wide variety of paper types available worldwide.

Paper gradually replaced other writing materials as it was affordable and easy to use. Its light weight made it easy to transport and its adaptability allowed for various applications, including writing, printing, drawing and packaging. The invention of paper was an important milestone in human history as it changed the way information was recorded, transmitted and preserved.

Cai Lun, the accidental inventor of paper, left a lasting legacy on human civilization. His willingness to experiment and think outside the box led to the development of one of history's most influential technologies. Paper became the foundation for advances in education, art, science, and all aspects of modern life. Cai Lun's invention not only changed Chinese society, but it also had a major impact on cultures around the world.

In conclusion, paper was first produced in the Han dynasty and later spread throughout the world through trading. The invention of paper by Cai Lun serves as a reminder that innovation can come from everyday problem solving and experimentation. As for the next big invention, who knows—maybe the next great invention is waiting to be discovered by everyday problem solvers who are willing to think outside the box. Maybe it will be you! Do you think you can create amazing inventions like Cai Lun? Use your own potential and leave a lasting impact on the world through discovery and innovation!

From Chopsticks to Rockets: The Incredible Inventions of Chinese People

Pui Kiu College, Liu, Junxiang Benjamin – 13

Ancient Chinese inventors have bombarded us with ahead-of-time inventions all the time, with groundbreaking inventions often coming out of poor, unnoticed inventors inventing things that are top of their time. Their innovations continue to inspire generations of young Chinese inventors whose creations are not only determining the whereabouts of Chinese society, but also extraordinarily impacting on the development of the modern world.

When Chinese civilization first began, they had little technological knowledge they could use to help them improve their lives. However, some clever brains are not comfortable with such little they could do at the moment, and came up with some incredible inventions. They used the power of nature, along with some pioneering thoughts of their own, to solve everyday problems like not enough farming efficiency. They have revolutionized their lives from time to time, slowly pushing up living standards to what we see today.

Their irrigation systems could water crops without needing farmers to carry heavy buckets from rivers or lakes. Scarecrows prevent unwelcome guests from eating farmers' produce. These inventions all changed the way people earned their livings. People could have time to carry out more tasks that they enjoy doing, not only limited to farming all day. The invention of paper, for instance, allowed people to get educated without having to afford expensive books made of bamboo, which itself was a huge advancement from turtle shells. These inventions just keep changing people's lives, in all different aspects.

One of the most significant contributions of ancient Chinese people was the invention of gunpowder. Originally invented as a medicine, gunpowder is a perfect example of how Chinese innovation changed the world. At first, gunpowder was not used as a weapon to kill one another, but rather ignited to celebrate festivals. But when foreigners bring this magical powder back home, they worked on this Chinese invention and created weapons that were exceptionally useful in battles.

These pioneering inventor's legacy continue to be a sign to young Chinese people about what their ancestors could do. They are well-aware of their country's achievements in the past, and do not disappoint their ancestors at all. The modern world is ever-changing, and China, as a leading country, is adapting to these changes in their unique way and changing even more! From what was a colony of western powers, China has risen in its own fashion. From nuclear weapons to aerospace technology, whatever you name, China has it, or is working towards it.

Home to a population of over 1.4 billion people, China has a market size that simply no other place can get. With this, the possibilities are unlimited. From cheap takeaway delivery to fine-dining in one of the world's tallest buildings, the diverse economy of the nation is a perfect place for— you guessed it— inventions!

Transforming tiny villages into bustling cities, China is home to world-leading technologies. Chinese companies like Tencent and Huawei are constantly pushing the boundaries of humans. We are producing microchips for mobile phones. We are sending dozens of people to space. We are operating our own home-built aircraft. All these things are solid proof to what we could achieve, and there is no need to leash your imagination at all.

We also care for the environment. Being the largest producer of electric cars, China is taking responsibility for the negative effects its industry has on the environment and is working tirelessly to change that. Shared bikes are visible everywhere on the streets in China, and there are more trees than ever before being planted near roads everywhere.

From 5000 years ago to now, Chinese people have continuously shined in their very own way, changing the course of history. Our positive impacts cannot be ignored, and we are ready to change those that are not. China was, is, and will always be, an ideal location for everyone to create.

Papermaking

Singapore International Hong Kong, Mak, Chun Ho – 15

Paper. A valuable essence of human life. Without it, trivial pieces of homework cannot be completed. Without it, architectural designs for the greatest structures we all know and love would never be completed. Without it, the most significant, life-or-death deciding treaties would never have been written down as part of humanity's history. Without it, our lives would be so much more challenging. Let us head back to where it all began, from the start of the beginning of such a wondrous creation...

Fifty AD, Guiyang Commandery, now present day Leiyang County. A baby, fresh from his mother's womb, lay wailing on the bed. His parents picked him up tenderly, not knowing what kind of future awaited him. One that revolutionised the world, one that completely changed the direction of mankind...

Born into a poverty-stricken family, the man known as Cai Lun came into the world during a period of strife, rebellion and warfare during the Han dynasty. Not fortunate enough to have sufficient resources provided by his low-class, poverty-stricken family, it was believed his early life was as rural and plain as it could be. Despite his relatively unknown and humble beginnings, the young Cai, against all odds, still managed to secure a humble job overlooking the iron mines of the past. With some sleight of hand, the crafty Cai obtained the position of an eunuch, one who overlooks the Imperial Harem containing the multiple empresses, consorts and concubines of the Emperor by 82AD; he developed a great interest in production and craft of items due to his additional role of *Shangfang Ling*, where he manufactures imperial musical instruments and equipment for the military. He continued living an unbothered life, despite the rebellions and coup d'etats occurring. As the years progressed, his craftsmanship soon became one of the most renowned and as high-class as it could get, setting the stage for a greater leap in his innovation.

Almost three decades later at 105AD, Cai was working at the imperial palace, Cai himself openly announced to the general public that he had developed a then more modern, state-of-the-art constitution of paper structures, alongside the addition of creating a new papercrafting procedure. Prior to Cai's new inventions, classical China most prominently utilised the tough, rigid structures of bamboo and wood pieces as a means to write lengthy and concise text respectively. Contrastingly, Cai himself had chosen to undergo a different approach, with an usage of mulberries, bast fibres, tree bark and more mixtures of unorthodox materials, even including waste! This new material, now known as paper, soon underwent drastic changes through Cai's constant experimentation from his desire to produce a better alternative to bamboo. Some thought that he had manually tested out the possible environmentally-available substances, some thought he had simply asked imperial craftsmen to help him. However, with the blessing and support of the Emperor, Cai eventually settled on his pulp technique, where he boils and heats all the materials together until they form a soft, shapeless chunk of rags; hammering the pulp with a wood hammer and finally using wooden sieves in order to create the material, now known as "Cai Hou Paper". Such a piece of paper carries several benefits. Not only is it lightweight and hence easy to carry round, but also utilises many raw materials. It was a great alternative to cloth and silk, which were extremely expensive back in the day. There were also multiple tales that illustrate Cai's reason and motivation for doing so: his hometown, where its people tended to utilise the mulberry trees. Another would be that he was motivated by how paper wasps make their own nests.

With such a groundbreaking, astounding and incredible formation, the Emperor gladly recognised Cai as a phenom and as popular as it could get. During Cai's final decade after his discovery of the paper, Emperor An had taken the place of Emperor Deng, and he immediately ordered Cai to head to the Ministry of Justice due to Cai's part in Emperor An's grandmother's death. As what Cai feared was a shameful and disgraceful death from the Emperor, he

took his own using poison in the year 121 AD, leaving no children behind, hence ending the life of what was one of the pioneers and founding fathers of both paper and its development.

Over several centuries, Cai's method of pulping rags has been the norm, up until the 19th century, where two bright minds started to make use of wood pulping and grounding in papermaking. Their names were Charles Fenerty and Friedrich Gottlob Fenerty, a Canadian and German respectively. Keller had invented a wood-cut machine, while Fenerty learnt how to manually pulp and bleach the wood into white, in order to create an authentic look for the paper. Slowly but surely, the era of newsprint, which consists mainly of wood pulping, had arrived, leading into the modern era.

The renowned Cai Lun, the masterful artisan who could craft anything, from weapons to rags. But his greatest treasure was his paper, which resulted in the worldwide increase of paper use and production. If he'd seen the impact his uninteresting and bland imperial eunuch life had on the world, he would have been satisfied. While this gift that he gave the world will be remembered through all of time.

China: Cradle of Invention

Singapore International Hong Kong, Ye, Zikai – 13

From the early stirrings of technology, the first mechanical clock developed from water wheels, to the man who made alcohol from fermented rice and honey, Chinese inventors have left their indelible mark on history with their revolutionary creations and genius. China has always been a cradle for innovation itself, nurturing the inventions that shaped our present and past. Why is China so prevalent and powerful in their creations? Let us explore the numerous remarkable inventions of ancient China and speculate on where China will take us in the future.

China can be credited for inventing modern time itself, pioneering the creation of clocks. Before China's Yi Xing developed the first mechanical clock based on calculations and mechanics, sundials and hourglasses were commonly used. However, they are quite ineffective since they take a long time to set up, while hourglasses often require constant management.

Our story starts with Yi Xing, a Buddhist monk, in 725 A.D. The Tang court, which was in power then, appointed him in charge of the sector investigating astrology combined with geodetic surveys, or astrology. In his life, he had a number of impressive achievements, such as calculating the number of positions in a go-chess game, which bolstered his popularity and fame. He drew inspiration from many famed individuals, such as Zhang Heng, who was the first to apply hydraulic pressure power, such as a waterwheel in mechanical engineering. Another source of his ideas was Li Lan, a Daoist local who was an expert on water mechanisms, creating balances for weighing water, and combined with the followers of Ma Jun, who employed waterwheels, it provided the perfect environment for his revolutionary invention.

The mechanical clockwork, first invented by Yi Xing, whose invention was described as a "Water-driven Spherical Clock," was operated by explicitly calculating the amount of dripping water it takes to complete one full rotation on a wheel for 24 hours, then precisely applying the calculations to create the first mechanical clock. The clock features intricate and delicate systems of overlapping gears and mechanisms regulating the water flow to drive the clock's movement. Yi Xing's clock not only demonstrated the Chinese's deep understanding of celestial mechanics but also built the foundation for future advancements in timekeeping through a mechanical manner, influencing other inventors such as Su Song, who developed a more sophisticated version of this clock, known as the Cosmic Empire 1092, which was astoundingly developed 200 years before the first mechanical clock in Europe. Although he has long passed, his legacy continues to inspire clockworkers and the field of timekeeping to this day.

Our next invention relates to something we still have not fully understood, which is the numerous natural disasters that plague our earth. Although we may not fully comprehend how they form and impact us, observation and prevention measures date back to the Han Dynasty, when the first earthquake detection measure was invented by Zhang Heng, another prominent inventor, astronomer, mathematician, engineer, and geographer at the time.

His most renowned invention was the earthquake detector, which was said to be able to detect the direction of earthquakes from even hundreds of miles away. Zhang's ingenious device, known as a seismoscope, consisted of a large bronze vessel adorned by eight dragons, who caught a small bronze ball in their mouth, and made up the primary compass directions, and eight large toads standing ready to catch the balls. This system may seem questionable and unconventional at first; however, by hanging the bronze ball on a loose stick, in the event of an earthquake, the stick would topple, causing the ball to fall into one of the toads with an ominous clang, alerting everyone around it to the potential danger.

In 138 AD, the bronze ball dropped menacingly in the imperial palace, received by the toads in the direction of Luoyong, the capital city at the time. Imperial officials were doubtful, questioning the legitimacy of the mechanism. In a twist of events, a Luoyong messenger arrived a few days afterward, confirming that there was an earthquake that did ravage the city around the time Zhang's seismoscope had set off.

Scientists are still fascinated by the simplicity yet effectiveness of Zhang's invention. In 2005, a group of scientists decided to recreate his prodigious seismoscope and used it to detect simulated earthquakes based on four real life earthquakes that happened close to China, near Vietnam. Miraculously, this phenomenal invention was not only able to detect it, but the data was accurate with those based on modern seismoscopes. This experiment proves that Zhang Heng's innovation was amazingly refined, remarkable, and ahead of its time.

Alcohol, known to some as liquid courage or even referred to as intoxication, has been and always will be a staple of both Chinese and Western culture. Although many assume alcohol to have a Western origin, recent discoveries in 2013 have discovered 9000-year-old pottery found in the Henan province had the presence of alcohol, almost 1000 years earlier than the earliest documented Arabian-produced alcohol, who were widely believed to be the first brewers of this golden beverage.

In China, alcohol is named "Jiu" and is traditionally made through the brewing and careful fermentation of a diversity of ingredients such as rice, fruits, and honey. This drink was not only used by officials and common folk alike to relax in social gatherings but was also a standard treatment used in medical remedies and methods in religious rituals.

During social gatherings, offering alcohol symbolizes shared hospitality and camaraderie, while its consumption is linked to celebrations, such as banquets, festivals, or weddings. In prayers or offerings to the spirits or higher powers, alcohol was presented as a libation, a drink as an offering to deities. Offering alcohol was a means of respect, often seeking blessings or favors from the gods in return. In addition, some doctors even use alcohol for its therapeutic abilities or used to dull pain and cure specific ailments.

By building upon the legacy of these honored Chinese inventors, modern society currently stands on the cusp of infinite possibilities, teetering between a crossroad of ideas and exciting prospects. With the rapid rise of technology and artificial intelligence, improving and further revolutionizing existing yet simple inventions, such as the mechanical clock by Yi Xing, is a real possibility for future inventors.

One possibility is implementing artificial intelligence and machine learning into a simple mechanism such as the clock, by allowing the clock to learn your sleep patterns, time, and quality of sleep, allowing the machine to learn from your habits to provide personalized suggestions on optimized sleeping times to maximize productivity and rest. While many trivialize the importance of healthy sleep, it supports a healthy brain and functions to maintain physical health. Designing this device that teaches and promotes a healthier lifestyle helps create a favorable environment for growth and mental development.

Another potential idea for upgrading Zhang Heng's seismic detector is to link it to nationwide security alarms, and when a sizable seismic activity is detected, indicating an earthquake, automatic signals are sent to cities and densely populated areas where damage would be the greatest, such as large buildings. For most earthquakes, deaths and injuries related to building collapse and giving citizens invaluable minutes to escape and evacuate could mean life and death.

China's focus on communication and social media communication is evident with recent inventions such as WeChat, allowing families to transcend geographical boundaries and connect in tough times. COVID-19, the recent virus that rampaged the global stage and caused lockdowns all around the world, separated many families from one

another, young teenagers from their parents, and families from their elders stranded overseas with no support. China's ingenuity saved many from succumbing to loneliness from lack of support and attention, rescuing those overwhelmed by feelings of isolation and forsakenness.

The inventiveness of ancient China and their continued contribution to modern society today have left their ineradicable mark on human history forever. From clocks, seismoscopes, and alcohol to revolutionizing communication and the potential implementation of artificial intelligence, their inventions have undoubtedly shaped the course of human progress.

As we stand on the shoulders of ancient Chinese inventors, let us continue to foster an environment of growth and progress, nurturing an environment of creativity and curiosity. Inspiring future generations and pushing the boundaries of possibility, China is one of the critical factors that usher us into a new era of innovation and progress.

Modern Inventions Of China

St. Joseph's College, Choi, Aidan Manhon – 14

Technology is one of the most important industries in the modern world. It has been crucial to the development of humankind. Without the machinery sprung from it, I doubt humans would be able to achieve even a tiny fraction of the accomplishments that we are achieving now.

A mere one and a half decades ago, China was but a rookie in the technology industry, and the size of China's digital economy in proportion to its gross domestic product (GDP) was only about 16.0% in 2005. But the digital technology sector has proliferated subsequently, growing to 37.1% in 2020, which is 2.3 times the amount in 2005, and it still has not stopped growing even until now.

These developments have been shown through different incidents throughout the 2010s and the 2020s until now, such as the emergence of different reputable mobile phone brands from Mainland China. These phone brands have become household names in the past few years. Eight out of the top ten mobile phone brands in 2023 are Chinese companies. Xiaomi, one of said phone brands, even being the top selling phone brand in countries such as Kyrgyzstan, Greece and Palestine.

Although China dominates the mobile phone market, phones were not invented by the Chinese. Instead, they were invented by Americans. What the Chinese did invent though, were creative ways to use a phone and use it more creatively in daily life. One excellent example would be the new digital payments gaining traction in the past decade. This kind of payment method relies on apps such as Alipay and WeChat Pay. Unlike the western world, rather than using cash and "traditional" credit cards and banks, they use their phones to pay for their daily purchases. Instead of taking out their card and swiping it, which requires one to bring their credit card everywhere with them, they use an app on their phone to display a quick-response (QR) code or a barcode to the cashier, and the cashier uses a scanner to scan it. This has multiple benefits. One of them being the risk of people forgetting to bring their money or their credit card to where they make their purchase. People are going to bring their mobile phone out anyways, so there is no reason why payment methods should not be built into mobile phones. Another reason why this payment method reigns superior to others is that it uses a powerful security system which fends your money off from thieves and hackers. Traditional credit cards have the chance of getting pick-pocketed, and all of the credit card information is on the card itself, allowing criminals to use your card with ease. Alipay, on the other hand, uses their Intelligent ALPHA Risk Management system. It uses artificial intelligence to identify the risks and uses intelligent risk assessment adjustment to analyse every transaction in real-time and block any suspicious transactions.

Despite Alipay hugely benefiting the lives of citizens in China or possibly even worldwide, it is not quite as life changing as the house 3D printing technology that was invented in China a decade ago.

Although there are plenty of excess houses in China, there is an estimated 1.6 billion people worldwide lacking adequate housing and that may rise to 3 billion people in the year 2030. In addition, due to inflation, housing prices will only continue to rise in the future, leading to less people being able to afford houses.

This problem needs a solution as soon as possible. Fortunately, a Chinese 3D printing architecture company, Winsun, has developed a 3D printing method that can be used to print small cabins, houses or even apartment buildings. They do this by using nozzles to dispense a mixture of quick-drying cement mixed with a special hardening agent, which is flexible, self-insulating and earthquake-resistant, in a pattern to make a building, like how a baker bakes a cake. They were the first in the world to achieve this phenomenal accomplishment which is a huge advancement in housing.

In a project in 2014, Winsun successfully 3D printed 10 houses, which are 2,152 square feet each, all in the span of 24 hours. Not only can they be printed very quickly, but these houses' construction costs are also only 30,000 RMB (32,972 HKD) each. In addition, these houses are predicted to last at least 100 years and they are as durable as a

house made from concrete blocks. In 2015, they 3D printed a five-story, 11,840-square-foot apartment building in Suzhou, China, which is near Shanghai, where the company is based.

These construction methods are able to save 60% of the materials normally needed to construct a home and can reduce the time needed for construction to just 30% of the time usually needed to build a typical residential building of the same size. As a result, this type of construction is also friendlier to the environment as the material used reduces the need for quarrying for materials, which cuts down noise, air and water pollution in the areas of the quarries. It also reduces the risk of accidents happening to construction workers as it scales the number of construction workers needed down to less than 10 per building.

Recently, this company has also expanded into Japan, bringing 3D-printed technology into other Asian countries. Other companies in Europe, Africa and the Americas also followed suit afterwards. Through this, the fuse might have just been lit for the future of construction around the world, and this may be the solution to the global housing crisis.

There are much more modern inventions of China that are worthy of naming, such as their social media formats, smart glasses, internet cars, et cetera. These inventions are destined to make a huge impact in the future, not only in China, but globally. With the rapid development of technology in China, it is likely that China will become the leading country in the technology sector in the near future. So let's stop looking down on China as a minor contributor to the field of technology, but instead as a strong player and a superpower in the world.

New Tales of China's Inventions

*St. Margaret's Coeducational English Secondary and Primary School,
Chan, Lok Hay Hayden – 12*

In ancient China, there are many tales of impressive weaponry, knocking down walls like butter and tearing through ranks of soldiers and horses like they aren't even there. But there is one so great, sharp as an obsidian blade yet tough as steel, that has been hidden away and removed from history, as to mask it from human eyes, for it was believed it could ruin the entirety of Asia if it landed in the wrong hands. But today, we delve in what caused this horrific personification of war to be created, and how it was made.

The Kingdom of Song was having a difficult time facing off against the old kingdom of Tang, it having built up its empire for nearly 250 years, and amassed an army consisting of nearly 1,000,00 troops, including cannons, siege weapons, conscripts and allied forces. The current Song king, Song Taizhu, was nearing a headache when one of his commanders came rushing in, yelling about some new "innovation". "Sir, sir, you are going to want to see this, one of our inventors has been screaming all morning about a new siege weapon he'd manage to come up with! It's Ling Fung! He's done it!" The emperor hung his head low, sighing out: "Oh not that buffoon again, the last time he "created the most powerful weapon below the heavens" burnt down the barracks, it took THREE months to rebuild! Oh fine I will go have a look at it."

The emperor trudged along the path next to the general, until they reached the armoury, where Ling Fung was almost running around in circles because of his excitement. "ME LORD, EMPEROR, I HAVE MADE DEATH ITSELF, GAZE UPON THE GREATEST WEAPON I HAVE EVER CREATED" he exclaimed. There sat a weird metal rectangle, with what seems to be two smaller rectangles attached to it, with one of them being curved to look like a handle with grooves carved into it. There seemed to be a tube on one end of the rectangle, almost like the barrel of a cannon, only much smaller. One final detail the emperor noticed was a very small handle on the side of the "weapon", attached to a secondary piece inside the bigger chamber, which could slide along a shaft cut out of the main piece. "What is this, amalgamation of iron, it just looks like you banged a lot of metal together", the emperor questioned, confused and unimpressed. "Well then you CLEARLY don't see the bigger picture here, let me show you."

The engineer picked up the weird contraption and push one end against his shoulder, with the tube pointed towards a target some 20 to 30 metres away. He pulled back the small handle and let go, with it slamming back forward and making a small *click*. He then pulled a small trigger next to the bigger handle and all the emperor could notice was the insanely loud *BANG* that went off and the flash of light in front of the tube. A small metal casing fell out of the weapon and landed on the floor. Looking further forward, the small target was all but disintegrated, and Ling Fung had a mad smile on his face, turning towards the emperor: "WELL? HOW'S THAT FOR A WEAPON SIRE?" The emperor's jaw was on the floor, and he could only mutter out "make..more."

And that is the tale of how a weapon several centuries ahead of its time was born, but just as quickly hidden, and served as an ancient example of the modern automatic rifle.

New Tales of China's Inventions

*St. Margaret's Coeducational English Secondary and Primary School,
Chan, Maris Sum Yuen – 12*

We all know some famous inventions of China, such as gunpowder, the papermaking technique, and the compass, but did you know China has also invented all sorts of other useful things?

China has actually invented one of the lightest flying objects known to man— the kite. This artificial bird was invented by 2 scholars, Mozi and Lu Ban, in the 5th century BC. During that time, there were a lot of wars in China, and the kite was used for military purposes. The kite, usually made of light wood and cloth, made a great ancient measurement tool, casually breezing over all sorts of difficult terrain, allowing the Chinese to easily measure distances and wind. They were also used as a form of communication, similar to smoke signals. Nowadays, kites are not used in the military and are merely a form of entertainment, instead made of cheap plastic and easily affordable. Who would've guessed a kite would be so useful in the past?

Talking about flying objects, we move on to China's second not-very-known invention— the rocket. While there were rocket-like objects used in the past, the first true rocket was invented by the Chinese. While we are still not sure about the exact date of the first use of the rocket, the first recorded date of a use of the rocket was in 1232. The Chinese used rockets, which were a tube with gunpowder strapped onto a stick, as a weapon to battle the Mongols, who were at war with them at the time. When launched, the stick would guide the tube, and the burning of gunpowder would act as fuel, allowing it to steadily fly to its target and explode. Eventually the Mongols would develop their own rocket, and the technology would spread and be developed until the rockets that we know today.

Besides the heavily militarised rockets and the breezy, light kite, the Chinese have also invented one of the most useful items in the world— paper currency. The first use of paper bills was technically used in the Tang Dynasty, but it wasn't an actual currency yet. Instead, it was used as a sort of receipt, where someone hands their very heavy copper coins to a trusted person and receives a paper slip, recording their deposited money. In the Song Dynasty, some Sichuan people invented the jiaozi— the first ever paper currency in the world. At first, it was used alongside copper coins, but later it completely replaced coins as the primary currency in China. Paper money, given how convenient it was, quickly spread across the world and is now a common currency to use, along with lighter coins.

China has invented all sorts of revolutionary items, from weaponized gunpowder to convenient money to paper. To this day, the Chinese continue to innovate and develop new and creative inventions to improve all sorts of aspects of life. A new, never-seen invention may be just around the corner.

New Tales of China's Inventions

*St. Margaret's Coeducational English Secondary and Primary School,
Chiu, Man To Isabelle – 12*

With a history spanning several millennia, China is an old civilisation that has given rise to innumerable inventions that have influenced the development of human civilisation. Among these incredible achievements, the creation of paper is a noteworthy accomplishment that completely changed how knowledge was recorded, shared, and kept. This essay examines the intriguing history of paper's invention in China, its significant influence on various facets of human existence, and its persistent legacy that still shapes our world today.

The Eastern Han Dynasty in ancient China is when paper first appeared on the scene. Compared to past writing materials like animal bones, silk, and bamboo strips, which were challenging, costly, and scarce, this fantastic invention marked a dramatic shift. The development of paper, which offered an accessible and adaptable medium for writing and communication, was a significant turning point in human history.

China produced its first paper by processing the fibres from plants, including bamboo, hemp, and mulberry. After being soaked, beaten, and combined with water, these fibres were made into a pulp that was uniformly and thinly applied to a level surface. The pulp was carefully dried, pressed, and smoothed until it became a thin, pliable sheet of paper. Over time, the process was improved, creating premium paper shipped to other countries and in great demand.

The advent of paper significantly impacted the development of human communication and the spread of information. Writing supplies were scarce and frequently only available to the wealthy or privileged groups before it was invented. Conversely, paper was quickly produced, lightweight, and reasonably priced, making it available to a larger audience. Due to its accessibility, knowledge became more widely available, facilitating the dissemination of literacy and the preservation of ideas across social classes.

Paper's widespread availability encouraged the creation of books, which allowed for the previously unheard-of level of knowledge preservation and accumulation. As educational institutions and libraries expanded, written language became a potent medium for disseminating knowledge about history, culture, and ideas. The development of paper had a significant role in the preservation and diffusion of the rich literary tradition of China, which includes a wide range of works in poetry, philosophy, scientific treatises, and historical chronicles.

The development of paper had an impact on knowledge and communication, but it also spurred progress in several other areas. Printing was one of these fields. The Tang Dynasty saw the invention of woodblock printing, which was made possible by the advancement of paper. Using this method, wooden blocks were carved with characters or images, inked, and pressed onto paper. The mass production of books was revolutionised by woodblock printing, which also reduced the cost of manufacture.

The diffusion of knowledge was significantly expedited during the Song Dynasty with the invention of movable type printing. The ability to cast individual characters in clay or metal made it possible to assemble and rearrange text efficiently. This technological advance in printing created the groundwork for the Gutenberg printing press, which was developed centuries later in Europe and sparked the Renaissance and the fast dissemination of information known as the Age of Enlightenment.

The Chinese were not the only people to invent paper. Papermaking knowledge travelled great distances via trade routes like the Silk Road, eventually arriving in the Middle East, Central Asia, and Europe. Remarkably, the Arab world was essential in transferring paper making skills to the West. Paper became widely used as a writing material after paper mills were built in places like Samarkand and Baghdad.

It is impossible to overestimate the influence of paper on world culture. It made it easier for old books to be preserved, for cultures to share ideas, and for scientific, technological, and creative disciplines to advance. It fueled the Enlightenment, the Renaissance, and the contemporary information era. The idea of a "paperless society" still exists in the digital age of electronic media dominance because of the Chinese invention of paper and its lasting significance.

The Chinese civilization's inventiveness and inventive spirit are demonstrated by the invention of paper. It revolutionised the methods of documenting, sharing, and preserving knowledge, democratising information access and propelling human civilisation forward. The paper has come a long way from its modest beginnings in ancient China to its widespread use as a symbol of human development and a reminder of the significant contributions that can result from the pursuit of knowledge and invention.

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary and Primary School, Chow, Hiu Long – 13

China, a land steeped in ancient traditions and rich history, has long been regarded as a cradle of innovation. From the invention of paper to the creation of gunpowder, China's contributions have shaped the world as we know it. Now, a new wave of discoveries is shedding light on untold tales of ingenuity from this remarkable civilization.

Archaeologists and historians are unearthing hidden treasures, revealing the vast scope of China's inventions. Among these remarkable finds is an ancient scroll that tells the tale of a time-traveling compass—a device rumored to have the power to transport its bearer to any point in China's history. This extraordinary artifact offers a glimpse into the ingenuity and brilliance of Chinese inventors.

As we journey through time with the time-traveling compass, we witness the construction of the Great Wall, a testament to human perseverance and engineering prowess. We stand beside ancient astronomers as they chart the stars and make astounding celestial discoveries. We marvel at the intricacy of porcelain-making and the artistry of calligraphy, each stroke a testament to the mastery of ancient craftsmen.

China's inventions extend beyond its borders, influencing cultures around the globe. The advent of paper revolutionized communication, enabling the spread of knowledge and ideas. The discovery of gunpowder transformed warfare and propelled technological advancements. The creation of silk, a luxurious fabric coveted throughout history, traversed continents, and became a symbol of Chinese craftsmanship.

Yet, the true treasure lies not only in the past but in the present. China continues to forge ahead with cutting-edge innovations, blending tradition with modernity. From technological breakthroughs in artificial intelligence and renewable energy to advancements in space exploration, China's inventors are shaping the future.

As we celebrate the remarkable legacy of China's inventions, it is essential to recognize the importance of preserving and honoring this cultural heritage. Museums dedicated to showcasing these treasures serve as a bridge between the past and the present, inspiring generations to come.

China's Legacy of Inventions

St. Margaret's Coeducational English Secondary and Primary School, Deng, Zhoulan – 12

Papermaking is an ancient technology invented more than two thousand years ago. It is one of China's four great inventions and its origin can be traced back to ancient China. Over time, papermaking has been used in many aspects and plays an important role.

Before the advent of paper, ancient people carved and wrote characters on oracle bones and bamboo slips, or cast them on bronze objects. During the Qin and Han Dynasties, official correspondence, private letters, and classics were all written on bamboo slips and silk. Bamboo slips are made of bamboo and wood, so it is very heavy. Although silk is light, it is expensive. For these reasons, people are very hard to use them.

Cai Lun's idea of improving papermaking from the emperor's review memorial. At that time, the memorials reviewed by the emperor were all written on "slips". Bundles of bamboo slips were pulled by eunuchs on carts, and several people carried them and placed them in front of the emperor's desk, where they were piled up into a hill. The emperor spent every day reading and reviewing the papers on the desk, which made his back hurt from exhaustion. Cai Lun followed the emperor all day long, he saw the situation and felt anxious, so he wanted to create a new writing material. During his tenure, Cai Lun often went to the suburbs of Luoyang to collect production materials. He summarized the experience of using hemp fiber to make paper since the Western Han Dynasty.

After repeating experiments, he created a paper based on bark, hemp heads, rags, old fishing nets and other plant fibers. As raw materials for papermaking, the quality of paper has been greatly improved. This kind of paper raw material is cheap, easy to find and easy to promote. Since then, the use of paper has become more and more common. Paper gradually replaced bamboo slips and became a widely used writing material.

Papermaking technology was introduced to Japan in the seventh century and to European countries in the eighth century. It increases the spread of writing, promoted cultural exchanges, and improved production efficiency. At the same time, it promoted the production and development of literature.

The invention and spread of the papermaking have a big effect on science and culture. It's also very important to the development of society.

Chinese Innovators of the Past: Pioneers of Ingenuity and Innovation

St. Margaret's Coeducational English Secondary and Primary School, Fiaz, Abia – 13

Introduction

China's history is teeming with a wealth of inventions and discoveries that have played a significant role in shaping human civilization. From ancient times to the modern era, Chinese inventors have made remarkable contributions across a wide range of fields, spanning technology, engineering, medicine, and astronomy.

Ancient Chinese Inventions

Ancient China witnessed the emergence of numerous inventions that revolutionised various aspects of human life. Among these, the invention of paper stands out as a monumental achievement credited to Cai Lun during the Eastern Han Dynasty (25–220 AD). Paper revolutionised communication and education by offering a more efficient alternative to writing on bamboo strips or silk, thus paving the way for the widespread dissemination of knowledge.

Another remarkable invention was gunpowder, originally formulated by Chinese alchemists around the 9th century. Initially intended for medicinal purposes, the explosive properties of gunpowder were soon recognized and utilised for military applications, leading to the development of fireworks and, subsequently, firearms. This invention had profound consequences, transforming warfare and shaping the course of human history.

The Compass, invented during the Han Dynasty (206 BC–220 AD), was a navigational instrument that revolutionized maritime travel. By providing a reliable method for determining direction, it enabled Chinese sailors to embark on long-distance voyages with greater accuracy, opening up new trade routes and fostering cultural exchange between China and other civilizations.

Technological Advancements

Chinese inventors throughout history have also made significant contributions to technology and engineering. One of the most notable achievements was the invention of movable type printing, attributed to Bi Sheng during the Northern Song Dynasty (960–1127 AD). This innovative printing technique allowed for the mass production of books, facilitating the spread of knowledge on an unprecedented scale and revolutionising the world of publishing.

The invention of the mechanical clock during the Tang Dynasty (618–907 AD) is another noteworthy contribution. These clocks, powered by water or weights, marked a significant advancement in timekeeping, enabling precise measurement of time and improving productivity in various fields.

Chinese inventors also excelled in the realm of agricultural technology. The invention of the seed drill during the Han Dynasty revolutionised farming practices, allowing for more efficient planting and increased crop yields. Other agricultural innovations, such as the iron plough and the water wheel, further improved productivity and laid the foundation for sustainable agricultural practices.

Medical and Scientific Contributions

Chinese inventors and scholars made remarkable strides in the field of medicine, developing innovative treatments and diagnostic techniques. Zhang Zhongjing, a renowned physician during the Eastern Han Dynasty, authored the influential medical treatise "Shang Han Lun," which provided groundbreaking insights into the diagnosis and treatment of various diseases.

Acupuncture, an ancient therapeutic practice dating back over 2,000 years, stands as another significant Chinese invention. This technique involves the insertion of thin needles into specific points on the body to alleviate pain and promote healing. Today, acupuncture is practised and recognized worldwide as an effective alternative medical treatment.

Chinese astronomers also made noteworthy contributions to the understanding of the cosmos. Shen Kuo, a polymath during the Song Dynasty (960–1279 AD), conducted extensive research on astronomy, geography, and natural sciences. His groundbreaking work, "Dream Pool Essays," contained detailed observations and theories on celestial phenomena, laying the groundwork for future advancements in astronomy.

Conclusion

The Chinese inventors of the past have left an indelible imprint on the world through their groundbreaking innovations and discoveries. Their inventions, ranging from paper and gunpowder to compasses and movable type printing, have had far-reaching consequences, transforming various fields and shaping human civilization. These inventors' contributions in technology, medicine, and astronomy exemplify the spirit of innovation and ingenuity that has been an integral part of China's rich history. Their legacy serves as a testament to the enduring impact of Chinese inventors and their invaluable contributions to the progress of humanity.

Wok – A Chinese Invention

*St. Margaret's Coeducational English Secondary and Primary School,
Kam, Ho Lam Matthew – 12*

Go into any Chinese kitchen, whether it be a commercial restaurant or a home, there will always be a certain instrument of cooking sitting upon the stove. Especially in Cantonese or Yue cuisine, this, of course, is the wok. The wok is so essential to Chinese cooking, I'm willing to go as far as to say that the wok is the pinnacle of Chinese cooking. One has to merely be in the vicinity of one in action to understand my view point: blazing orange-red flames burst forth and heat a shallow simmering pool of oil, the delectable food inside the wok gets tossed and turned like a roller-coaster, and deep, flavorful, mouth-watering aromatics fill the hectic kitchen.

The wok is most famous for being essential in any stir-fried dish but can be used in a massive variety of methods which include but not limited to: boiling, braising, pan frying, roasting, searing and steaming.

The wok is one of the staples of Chinese cooking and is deep and round in shape with it most commonly being made of cast iron or carbon steel, though there are different types.

The Chinese wok originated during the Han Dynasty, where it was crafted using raw iron. Skilled Chinese blacksmiths would forge the deep, round cooking vessels at a dangerously high heat of 1600°C, then painstakingly hammer and polish their creations by hand. Despite the 2000-year time gap between the Han dynasty and present day, the process of wok making remains relatively unchanged.

Woks are made of a sheet metal which is cut depending on the desired size and then hammered up to 5000 times to shape. While gently hammered again and again, the iron gets lighter but tougher with higher density. In this way, light and durable woks are produced. Additionally, the surface of a wok that has been hammered is uneven, which allows oil to spread well and prevents food from burning easily. After the manufacturing, it must undergo a seasoning process before it can be used. This ensures that the coating is non-stick and heats evenly during cooking. The wok is first washed in warm, soapy water, then dried thoroughly. Next, every single inch of the wok must be burned over high heat to release the impurities found in the metal. After that, the wok is cooled and a layer of oil is poured in. The oil, which prevents moisture and rust from forming during the cooking process, is then heated until a glossy protective patina is formed. And finally, you're left with a gorgeous fully-seasoned wok.

When you talk to a seasoned chef about woks, another Cantonese phrase will almost always be thrown around and is near synonymous with the wok itself. This phrase is “Wok Hei” and quite literally means “breath of the wok”. This refers to the extremely distinct charred taste and smokey flavor coming from the dish that the wok is cooking. The traditional way to infuse your food with “wok hei” is to cook in a seasoned wok over a high flame whilst being stirred and tossed quickly. In any kind of cooking the sooner you lock in moisture to a protein or a vegetable, the more you enhance its total nutritional value and flavors, which is why chefs use an enormous amount of heat, which can exceed 700 Degrees Celsius, when cooking with a wok. The unique shape of the wok is imperative for cooking food evenly no matter the temperature. The design of the walls of the wok can be broken down into three areas, which are the conduction zone, condensation zone and the convection zone. The conduction zone is the hottest since it is right on the flame and is the best for searing. In the condensation zone the temperature drops significantly, the food is still cooking its just up off the surface. Because of the lower temperature where you're ‘resting’ the food, it won't over-caramelize. And finally, the convection zone, is where food flies freely and finishes off when it's there.

The four great inventions of China are paper, printing, gunpowder and the compass. However, I firmly believe that the Wok should be the fifth as it is one of the cornerstones of Chinese cooking and improves the depth of flavor, plus the quality of life of chefs and their dishes all around the world. Bon Appetit!

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary and Primary School, Lau, Chun Hei – 13

Paper is one of the four great inventions of China. It is a thin sheet of material produced by mechanically or chemically processing cellulose fibers derived from wood, rags, grasses, or other vegetable sources in water, draining the water through a fine mesh leaving the fiber evenly distributed on the surface, followed by pressing and drying. Paper was originally made in single sheets by hand. However, almost all papers are now made on large machines.

Paper is a versatile material with many uses, including printing the tips for this Christmas holiday homework, wrapping Christmas gifts and decorating the venue of Christmas party. Paper is so useful in our daily lives, but do you know how it was invented? Let me tell you!

Paper is an invention that was created in China. The papermaking process was developed around 105 CE by a eunuch in Han dynasty – Cai Lun. Before the invention of paper, people wrote on clay tablets, papyrus, parchment or vellum. Cuneiform characters were placed on wet clay tablets with a stylus made from a reed. The clay and reeds were not expensive. They were easy and quick to make, and easy to dry under hot climate, but clay was not available everywhere. On the other hand, paper could be made from many materials including rags and clay tablets break, so it was more convenient to make paper.

To make paper, Cai mixed mulberry bark, hemp and rags with water, mashed it into pulp, pressed out the liquid and hung the thin mat to dry in the sun.

During the 8th century, about 300 years after Cai developed the papermaking process, this 'secret' traveled to the region that is now known as the Middle East. Yet, it took another 500 years for this skill to enter Europe. One of the first paper mills was built in Spain, and soon, paper was being made at mills all across Europe. Then, as paper became easier to make, it was used for printing important books, bibles and legal documents.

To conclude, although paper can be made easily nowadays and it is convenient for us to use paper, we should thank Cai Lun for his amazing invention and protect the environment by reducing the use of paper.

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary and Primary School, Lee, Bernessa – 12

In Ancient China, many great inventions were made. There were four inventions known as the “The Four Great Inventions of Ancient China”. The Four Great Inventions are inventions from ancient China that are celebrated in Chinese culture for their historical significance and as symbols of ancient China's advanced science and technology. Paper making, printing, gunpowder and the compass were the four items. Let's talk about each item's origin as it gets more interesting. Learning more about our homelands inventions can also enhance our knowledge of Ancient China. These great inventions greatly promoted the development of China's economy, politics, and culture.

First invention, compass. It is known by the public that China may have been the first civilisation to develop a magnetic compass. After it was invented, compass was used for divination and geomancy for centuries. With the help of a compass, ancient people can prevent getting lost in the middle of the ocean or newly discovered land. In Ancient China, as there was a lack of communication with other countries, it was difficult to know that they even existed. The invention of the compass made it possible to determine a heading when the sky was overcast or foggy, and when landmarks were not in sight. This enabled mariners to navigate safely far from land, increasing sea trade, and contributing to the Age of Discovery. In Ancient China, the compass was first used to worship, fortune-telling and geomancy—the art of aligning buildings. In the late 11th to early 12th century, Chinese sailors adopted the compass for astronomical and terrestrial navigation, heralding a new era in the history of navigation.

In addition, a compass includes north, east, south, west, with the north point being red in colour. For knowledge, Shen Kuo, a Han Chinese scientist and public official of the Song Dynasty, made the first known explicit reference to the magnetic compass—needle and the concept of true North.

The birth of paper took place under the Chinese Han Dynasty in AD 105. Ts'ai Lun, a court official, invented a papermaking process which primarily used rags (textile waste) as the raw material with which to make paper. The second great invention of China, papermaking, is a complex process in which paper is produced from pulp, water, filler, and chemicals. In around 100 BC, ancient Chinese people invented paper from hemp, then moved on to using tree bark, bamboo, and other plant fibers to create paper. The invention of paper is a symbol of advanced science and technology in ancient China. Throughout history, it's played a crucial role in the development of writing, printing, education, science, art and culture.

To continue, papermaking can let people have education, for example, let people write on papers to remember things. In ancient China, papermaking can also be used in imperial court for business trading with other countries or informing the emperor about news happening to different places. Example, if there are floods in the Yellow River Plain, officials can write on the paper and send it to the imperative court so that the emperor can be informed about the situation and send out troops or officials to help with the situation there.

The third item, gunpowder. Gunpowder was invented during the late Tang Dynasty (9th century) by Chinese alchemists searching for an elixir of immortality. The original purpose of gunpowder was used to make fireworks for festivals and major events. It was later utilised as an explosive substance in cannons, fire-arrows, and other military weapons. Since there were many battles in ancient China, the demand for gunpowder was relatively high.

Furthermore, with the help of gunpowder, the military power of China has greatly increased. Gunpowder was used to protect one's own country from others during war and to dominate other places for their territories. It was a favourable invention for the ancient Chinese people.

Lastly, the last object from “The Four Great Inventions of Ancient China” was printing. The oldest known printed text originated in China during the first millennium A.D. Printing originated in China, evolving from ink rubbing made on paper or cloth from texts on stone tablets, used during the sixth century. It was invented in China about 700 A.D., making China the country with the longest history of printing in the world. Craftsmen had developed a way to

mass produce books by carving words and pictures into wooden blocks, inking them, then pressing paper onto the blocks.

In addition, the printing press has sparked the “printing revolution”, the popularity of woodblock printing onto paper in China has spread widely across the globe. The knowledge of woodblock printing from China was brought to Italy and many other parts of Europe. Printing has helped ancient Chinese in many different ways. You only have to carve out the word once and put ink on it to print out words rather than writing the same word over and over again. Example, the word “the” is very common and it would take a lot of time to write out the same word, therefore, Chinese craftsmen have invented printing so you only have to soak it with ink and you can get the word on paper without writing it out. Fun fact, the Diamond Sutra, a Buddhist book from Dunhuang, China from around 868A.D. during the Tang Dynasty, is said to be the oldest known printed book!

With all these great inventions invented by China, it has greatly influenced not only Chinese, but the whole world. It has made people's lives easier and more convenient. Nowadays, the inventions have been greatly improved and it has shown how China's invention made a significant impact to the world. We should appreciate every invention made and the effort from ancient Chinese people since they helped us to develop into a better future and have better living.

New Tales of China's Inventions

*St. Margaret's Coeducational English Secondary and Primary School,
Mok, Chun Ting – 12*

Everyone may be familiar with Luban. But do you know why he is so famous? Today we are going to describe LuBan this person.

LuBan was a famous craftsman in the late Spring and Autumn Period, and was honored by later generations as the master craftsman of China. It is said that Lu Ban was born in the Gongshu clan, a large family in the Lu State. Because he was from the Lu State, he was called Lu Ban or Lu Ban. Later, the name Lu Ban became the most widely circulated and became a common name. Lu Ban was born in about 507 BC (the thirteenth year of King Jing of Zhou Dynasty). 40 years later, he lived in seclusion in Lishan (southeast of today's Jinan City, also known as Qianfo Mountain).

Legend has it that the saw was invented by Lu Ban. In fact, archaeologists have found that humans living in China were processing and using toothed stone sickles and clam sickles as early as the Neolithic Age. These were the prototypes of saws. Hundreds of years before Lu Ban was born, in the Zhou Dynasty, people were already using copper saws, and the word "saw" had already appeared.

The following is one of the widely circulated legends about Lu Ban's invention of the saw. The author is unknown. Some people in modern times use this legend to believe that Lu Ban was a pioneer in the application of "bionics"

According to legend, Lu Ban accepted the task of building a huge palace. A lot of wood was needed, so Lu Ban asked his apprentices to go up the mountain and cut down trees. The apprentices used axes to chop, which was inefficient. The craftsmen worked hard every day from dawn to dusk, but could not cut down many trees, which delayed the progress of the project again and again. Seeing that the project deadline was getting closer and closer, Lu Ban was very anxious. To this end, he decided to go up the mountain to personally inspect the situation of felling trees. While going up the mountain, he accidentally grabbed a handful of a kind of weed growing on the mountain and his hand was scratched. Lu Ban felt very strange. Why could a piece of soft grass cut his hand? So he picked off a leaf and observed it carefully. He found that there were many small teeth on both sides of the leaf. When he touched it gently with his hand, these small teeth were very sharp. Lu Ban realized that it was these small teeth that scratched his hand. Later, Lu Ban saw a large locust eating leaves on a grass. The two large fangs were very sharp. They opened and closed and quickly ate a large piece. This also aroused Lu Ban's curiosity. He caught A locust carefully observes the structure of the locust's mouth and finds that the two large teeth of the locust are also arranged with many small teeth. The locust relies on these small teeth to bite off grass blades. Because of these two things, Luban was greatly inspired and fell into deep thinking. He wondered, if it were made into a jagged felling tool, would it be equally sharp? So he used a large moso bamboo to make a piece of bamboo with many small saw teeth, and then tried sawing a small tree. The result was good. The bark was torn in just a few strokes. After a few more pulls, a groove was drawn on the small tree trunk. , Luban was very happy. However, because the bamboo pieces are relatively soft and have poor strength, they cannot be used for a long time. After pulling for a while, the small saw teeth may break or become blunt, so the bamboo pieces need to be replaced. This affects the speed of felling trees, and using too many bamboo chips is also a big waste. It seems that bamboo slices are not suitable as a material for making saw teeth. A material with higher strength and hardness should be found to replace it. At this time, Luban thought of iron slices. So they immediately went down the mountain, asked the blacksmiths to make iron sheets with small saw teeth, and then went to the mountain to try sawing trees. Lu Ban and his apprentice each pulled one end and pulled it up on a tree. As they went back and forth, they cut the tree in a short time. It was fast and labor-saving. This is how the saw was invented. Apart from saw. Lu Ban also invented a lot of invention. For example, umbrella, ink fountain, curved ruler etc.

After we talk about the invention that Lu Ban invented. Let's talk about how people commemorate Lu Ban. Every year on the 13th day of the sixth lunar month is the "Master Lu Ban's Birthday". Many carpenters in the Chinese community, especially Hong Kong and Macao, celebrate this festival. In Taiwan, the seventh day of the fifth lunar month is often celebrated as the Christmas Day of Qiao Shengxianshi. The China Carpentry Trade Union attaches great importance to this festival. When they congratulate the master on his birthday every year, they have a traditional activity of giving out "Master Rice", which is to cook white rice in a big iron wok on the master's birthday, plus some vermicelli, dried shrimps, black beans, etc. It is said that children who eat "Master's rice" will not only be as smart as Lu Ban, but also grow up quickly, become healthy and smart. In addition, on the day of "Master Lu Ban's Birthday", a group of artists will be invited to come back to sing eight tones, or a puppet show will be invited to perform.

Hong Kong celebrates the birthday of Master Lu Ban, which is a major event in the construction and real estate industry. Real estate developers, contractors and even small bosses all treat guests to this day to express their condolences to the staff of all parties. All those related to the construction industry do not need to be invited, they are all guests. among the list. People even created the China Luban Award to encourage construction companies to strengthen management, ensure project quality, strive for first-class projects, and promote the general improvement of China's project quality level. Currently, this marks the highest honor for project quality in China's construction industry.

The Art of Craftsmanship

St. Margaret's Coeducational English Secondary and Primary School, Mok, Garren Shin – 12

A long, long time ago, in a small unnamed town in China, there lived a boy named Cheung Wei, he grew up watching his father create inventions. Inventions that made the townsfolk think Cheung Wei's father, Cheung Tao was insane. The townsfolk began to complain to the mayor to have Cheung Tao exiled. However, the mayor couldn't really do anything because Cheung Tao wasn't harming others, he was just annoying townsfolk and tricking them into buying his terrible inventions.

As Cheung Wei grew up, the words of this father's inventions had spread all across the kingdom, eventually reaching the ear of the king. Luckily, the king was kind enough to try out Cheung Tao's inventions. Cheung Wei didn't know the full story, but he did know that the invention was bad enough for his father to never return home. Cheung Wei's mother Dou Mei begged the king desperately on what had befallen on her husband, but the king never said a word and ordered his men to kick her out.

Years later, Cheung Wei had become a respectable inventor unlike his father. His inventions helped the townsfolk, like his organic water purifier and automatic harvest machine. He enjoyed the praise and wanted to make more inventions but one thing changed his life forever. His mother, Dou Mei had fallen ill to a deadly disease known as D3A7H. She had went to see all the doctors in China but they all said the same thing, 'You are not long for this world. Only a miracle can save you.' Cheung Wei got angry with the doctors, he was angry that they didn't even try to save his mother's life. He glanced over at Dou Mei, who was on her deathbed. He went over and said 'It's okay, mother. I'm going to make that miracle happen, I promise.' He hired a nurse to take care of his mother while he was away. As he was walking away from the village, the mayor said to him 'You know there's no coming back from this, right? Once you step foot out of this village, who knows how long you're going to spend chasing a miracle? Years? Decades? A lifetime? It would cost you dearly.' 'I don't care how long it takes, I know what I'm doing and I know the price I'm going to pay. But I have to do this. I have to save my mother. She's all I have left.' Cheung Wei replied.

So off Cheung Wei, with only a backpack filled with a week's worth of food and drink, notes and blueprints of his inventions. Within three weeks, Cheung Wei had met many people who helped him find a cure for D3A7H. But they all came up with nothing. No one could help him, Cheung Wei felt hopeless. A few weeks later, he found himself on a hot, dry desert. He had been travelling on the desert for nine days now. His rations were all gone, and his steed who was gifted to him by one of Cheung Wei's friends was dead. As Cheung Wei walked across the desert with the sun blazing down on him, he only thought about one thing. 'I'm so hungry, thirsty and tired. What about mother, though? I don't even know if she's still here, I don't know what's happening to her. I'm so scared for her.' Eventually, Cheung Wei passed out from the heat and exhaustion.

When he awoke, he found himself under a tent, with a fresh set of clothes and food and drink next to him. He also found a man looking at his blueprints and notes. 'Who are you? Where am I? Why are you looking through my backpack?' Cheung Wei asked. 'Ask questions later. Freshen up and talk to me.' The man replied. After Cheung Wei ate and changed into some fresh clothes, he got a better look at the man's face. 'Wait, I know you. You're Lau Wong, the 'Miracle Doctor'!' exclaimed Cheung Wei. 'Yes, I'm the 'Miracle Doctor'.' replied Lau Wong. 'It's a pleasure to meet you, sir. I'm sorry to ask you of this, but I need your help.' Luckily, Lau Wong agreed to help Cheung Wei out, eventually discovering a cure for D3A7H, known as L1V3. After creating the cure, Cheung Wei rushed home to his mother.

‘Mother!’ exclaimed Cheung Wei. ‘I did it! I have found a cure for the disease!’ Cheung Wei injected the serum into his mother, praying to himself that it would work. Within minutes, color began to rush back to her face, and her energy seems to have come back to her body. Soon enough, word of L1V3 reached the ear of the king. Eventually, the king’s men found Cheung Wei and said ‘The king demands your immediate arrival, failure to comply will result in severe punishment.’ Without a second thought, Cheung Wei followed the men’s orders and brought along L1V3.

When Cheung Wei arrived at the palace, he saw the king waiting outside for his arrival, frantically walking around. Looking at the king, Cheung Wei’s blood boiled and his heart filled with hatred. He hated the king for not telling him nor his mother what happened to Cheung Tao. The king invited Cheung Wei into a bedroom, and in the bed laid a beautiful woman, Cheung Wei recognized her immediately, she was Rei Lai, the queen, the wife of the king. ‘Please can you help her?’ asked the king. ‘I’m sorry, I can’t help you.’ Replied Cheung Wei. All of a sudden, the king got on his knees and begged ‘I’m sorry, I truly am, I’m sorry to what I did to your father. My wife, she has the same disease as your mother, D3A7H. When I heard about your father, I heard that invented a cure for D3A7H, my wife had started to show symptoms of D3A7H and no doctor could help her. That’s when your father came along and brought the ‘cure’. After she took it, her condition worsened and she is in a coma because of it. Blinded by rage, I ordered my men to execute your father. After I realized what I had done, I was too ashamed to face your mother, that’s why I never revealed what happened to Cheung Tao. I know I don’t deserve your help, but please help me save my wife, she had nothing to do with any of this.’ Cheung Wei looked at the desperate king and looked at his wife. He was obviously very angry, but knew if he let his emotions get the better of him, he would harm others like the king. Suppressing his anger and hatred, he took out L1V3 and put it in the queen’s mouth. Moments later, the queen awakened from her decade-long slumber. The king, with tears in his eyes, thanked Cheung Wei endlessly. On his way out, a soldier gave him a piece of paper, he read it and realized it was a certificate of ownership of a high-end property that the king owns.

As Cheung Wei and his mother walked into their new home amazed at how big it is, Cheung Wei told his mother what happened to his father and they decided that it was best for them to move on, letting go their anger and hatred in the past to make room for the future and the many fantastic inventions Cheung Wei would on to invent.

Development History of Kites

St. Margaret's Coeducational English Secondary and Primary School, Su, Qing JoJo – 12

Nowadays, when you walk on the traditional Chinese streets, you can always see the kites showing in the showcases. The shapes of kites are different but lovely, such as butterfly, swallow, phoenix and so on. They are also colourful, with a mixture of different colours and meanings. More interesting, according to their shapes and colours, you can tell which province in China each kite is made from. You will be attracted by such an interesting thing. So, you can't help but wonder how much history and culture in China are involved in the development of kites?

As early as the Spring and Autumn Period and the Warring States Period, a man called Mozi made the first kite with wood. But it broke after only one day's use. Then a man called Luban improved the materials of kite. He used bamboo not wood to make the kites. In the Sui and Tang Dynasties, the materials of kite were more advanced when the kites were made of paper.

In the past, the kite was considered as a tool for message sending and military detection. The most presentative example is that the Emperor Wu of Liang was trapped in the city by rebels. Facing the critical moment, a minister tied the plea for help on the kite and let it fly away in order to get support. Although the emperor failed to be rescued, this case shows that people use kite to send messages to others in the past. Also, during the period of the War of Chu-Han, a general named Hanxin, who was famous for The Battle to destroy Zhao, used the kite to measure the distance of the tunnel below the palace.

In the 13th century, an Italian merchant named Marco Polo came to and brought Italian culture to China. After he went back to Italy, he brought Chinese culture to his country, including the culture of the kite. As a result of which, the culture of the kite became popular in Western world.

Nowadays, the meaning of kite changes a lot. Flying kite becomes an activity for leisure and entertainment, instead of a tool to communicate. During Qingming Festival, children and adults usually fly kites on the lawn to celebrate the revival in all unions with the advent of spring. In addition, there are kites everywhere on traditional Chinese streets and you can even see some old men are making the kites! Moreover, doctors believe that flying kite can cure whiplash. So, many people like to flying kites for health. In Chinese culture, there are many poetries and stories writing about kites, some praised the consummate skills of making kites, where others recorded the scene of children flying kites.

There are many inventions in China. However, I think the most interesting invention is the kite. It combines a long and colourful history and is still loved and appreciated by the people until now.

The Great Inventions of China

*St. Margaret's Coeducational English Secondary and Primary School,
Yue, Tsz Ching Janice – 11*

Speaking of Chinese inventions, what invention first comes to your mind?

This question often makes people feel bored. Because it is so meaningless, just like what I say very often, "There is no wonder in the world". To be explicit, I think it is more appropriate to say: "Nothing more interesting can be found nowadays!"

But how about in the past? Sometimes things that you think are boring and nowhere to be found are very valuable in the eyes of the others. Namely, Chinese culture and are what countless people dream of and devote to. To me, speaking of ancient Chinese inventions, the greatest inventions are gunpowder, papermaking and movable type printing among the four great inventions.

Let's talk about gunpowder first. Some people might disagree the use of gunpowder in wars, but the truth is, it is functional in many aspects in the society. In ancient times, emperors hoped to live forever, so they ordered Taoist priests to refine sulfur, saltpeter, cinnabar and mercury, and then boil them on the fire. During the Western Han Dynasty, a young Taoist priest forgot to watch the medicine in the alchemy furnace and fell asleep. While he was dreaming, he only heard a loud "boom" and the alchemy furnace exploded. He shouted, "Something happened to gunpowder!" From then on, the word gunpowder came into use. People noticed the huge explosive power of gunpowder and finally developed the world's earliest explosives. From then on, explosives were used to open mountains and build roads, or in military warfare. Since the advent of explosives, it has brought benefits to mankind, but also brought disasters to mankind. Of course, this is not the fault of the inventor of dynamite or the dynamite itself, but the responsibility of those in charge of the dynamite.

The second is papermaking. This invention makes our lives better, and we also use paper products in our daily lives. From ancient China to the Western Han Dynasty, people wrote on sheepskin or cloth. This was very expensive, so the poor had to use bamboo slips to write, but bamboo slips were very bulky. During the Eastern Han Dynasty, in order to invent a cheap and simple writing instrument, Cai Lun, a minister of the Central Committee, visited many craftsmen and ordinary people, and after many experiments, he finally made the world's first paper using tree bark and fishing nets. The invention of papermaking brought about a revolution in writing, making it possible for poor people to write and read, and making books widely circulated.

Finally, there is movable type printing, which is like using a seal to print a pattern on paper.

Bi Sheng, a native of the Northern Song Dynasty, worked as an apprentice in a printing studio since he was a child. He saw the master carving characters on the entire board. Just because one character was broken, the entire board could not be used. He thought that it was a waste of manpower and material resources. So Bi Sheng carved a word on each small wooden block, and then put them together for printing. He discovered that wooden movable type easily swelled when exposed to water, so he later switched to using clay-fired movable type for printing. Bi Sheng's invention speeded up printing and saved labor. His invention was 400 years earlier than European metal movable type printing.

I think Chinese inventions are really great, because they cannot change our previous lives, but they also allow us to use these improvements to achieve a better quality of life in modern times.

AngelEyes – The Wings of Perception for the Blind to Take Flight

St. Paul's Co-educational College, Seto, Ching Grace – 16

China's contributions to human civilization are as diverse as they are significant. From ancient times to the modern era, Chinese inventors have pioneered groundbreaking technologies that have revolutionized various aspects of life. The Four Great Inventions of Ancient China are classic examples of her consistent innovations, yet new tales of China's inventions have been entering the scene following the rise of technology. Beyond the familiar, commonplace narratives, the Chinese together orchestrate inventions of imagination and brilliance, creating momentous feats of human ingenuity.

According to the World Health Organization, approximately 253 million people worldwide have visual impairments, with 36 million of them classified as blind. Conventional pleasures of life that the average person is entitled to, from reading a book to watching television, come across as unattainable to the blind. Undoubtedly, success stories remain, such as Helen Keller writing up to 14 books, but such exceptional cases are but a needle in a haystack. Blindness permanently scars an individual's quality of life, independence, and access to opportunities – be it education or employment. Fortunately, AngelEyes recognises this long-standing issue and addresses it.

AngelEyes is an extraordinary wearable technology that has emerged as a new thread sewn into the tapestry of China's inventions – a pair of smart glasses designed to assist blind individuals in navigating and perceiving the world around them. Developed by Next VPU, a pioneering software development company based in China, AngelEyes utilizes artificial intelligence (AI) and sensors similar to those used in autonomous cars to provide a range of functionalities.

Contrary to popular belief, this gadget that assists the blind is not a pair of glasses. In terms of the “Wearable Version”, it is rather a device attached to the temple of glasses. It is identifiable by its rectangular shape, with a touch bar in the center and a camera at one end. The power button and charging jack are located at the side of the device for wearers to easily locate by touch. For the “Desktop Version”, the device is shaped in a conical frustum with an camera extension at the top to scan items placed in front of it. The power key as well as USB inlets align at one side of the frustum, again for ease of access. Despite a slight divergence in their specifications, the two AngelEyes Versions share the same remarkable features.

One of them is its ability to detect objects, enabling blind users to navigate their surroundings more safely and independently. By leveraging AI and sensor technologies, the smart glasses can identify and alert the wearer to potential hazards in their path. Thus, AngelEyes provides a platform for the visually impaired to freely travel, uninterrupted by obstacles. In addition to object detection, AngelEyes also incorporates other functionalities to enhance the blind user's experience. It can recognize different banknotes, enabling individuals to independently identify and handle money. The glasses also assist with text reading, allowing users to access written information, such as signs, menus, or documents, through optical character recognition (OCR) technology. OCR begins with capturing an image of the text to be recognized, using a scanner or a specialized OCR device. Once the image is secured, OCR software performs preprocessing steps to enhance the image quality and optimize it for character recognition, involving operations like noise reduction, skew correction, and normalization of the image with OCR algorithms. Post-processing steps are then applied to improve the accuracy of the recognized text, including dictionary look-up, language modeling, and context analysis to refine the results and enhance the overall accuracy of the recognized text. Moreover, AngelEyes is equipped with the capability to recognize colors, enabling users to differentiate between various hues. This feature can enhance their perception of the environment and aid in distinguishing objects or elements based on color cues. The glasses can also detect different levels of light intensity, providing valuable information about the brightness of the surroundings.

Ultimately, one of the most impressive aspects of AngelEyes is the compactness and portability of the technology. Founder Feng Xin Peng has managed to fit a powerful AI system into a mere 45-gram pair of glasses, alongside the necessary sensors and processing capabilities. This maximizes the convenience and subsequent satisfaction derived

from putting AngelEyes into use. The achievement is notably commendable, considering that similar technology would have been deemed impossible to fit into such a miniscule form factor just a few years ago.

The development of AngelEyes represents a significant advancement in the application of AI and wearable technology to improve the lives of blind individuals. By providing unprecedented functionalities, the smart glasses embody an international breakthrough in human intelligence, offering greater independence and access to information for the visually impaired.

Over the past years, China has made numerous efforts to elevate the quality of the life of the blind. Students from the Kunning University of Science and Technology, for example, invented the helmet Eye See to detect obstacles within three meters using a laser radar, while professors from Zhejiang University developed a pair of glasses to collect information about the wearer's surroundings, converting it into audio signals. The aforesaid inventions are undoubtedly great leaps in human technology, yet pose inconveniences to users in real-life contexts and interactions, not to mention the robotic mechanics attracting unwanted attention from passers-by. Thus, the preceding inventions, though impressive by themselves, pale in comparison to AngelEyes. They set the stage for AngelEyes to ameliorate and, even, completely eradicate the concerns of the blind.

Though possessing numberless perks, AngelEyes still bears room for improvement. To further refine and enhance AngelEyes, connectivity and accessibility should be emphasized: the smart glasses can be connected to other devices or networks, enabling seamless access to digital content, applications, and services. For instance, this connectivity can facilitate the integration of screen readers, navigation apps, voice assistants and other assistive technologies, providing a more comprehensive and holistic support system personalized for individuals with visual impairments.

AngelEyes serves as a testament to China's commitment to technological innovation, pushing boundaries, and finding creative solutions to address societal challenges. Bold and groundbreaking, it exemplifies how advances in AI, miniaturization, and sensor technologies can be harnessed to create revolutionary inventions that positively impact people's lives.

A Seed of the Future

St. Paul's Secondary School, Lau, Tsz Yi Stella – 12

In a world where human desire and inventive thought are the primary means of weaving time together, an enigmatic force known as Fibre Optics is at work. It is more than just a tool; Sir Charles Kao Kuen's inventive genius gave rise to a conscious being. It is a real-life illustration of human ingenuity as well as the limitless potential of the human mind and the unbroken power of perseverance.

The story of Fibre Optics history is not merely a history; rather, it is a tale that encompasses time and the tremendous history of human ingenuity. It began at a pivotal moment: the illustrious Nobel Lecture delivered by Sir Charles Kao on December 8, 2009. In the hallways, Kao's words transformed into an insightful hymn which honoured the brilliance of technological progress while resonating with the sounds of contemplation.

However, the roots of Fibre Optics can be found far further back in the fertile ground of Professor Kao's inquisitive mind. In 1966, he posed two key questions, setting off a global scientific inquiry into previously unheard-of technological domains: "Is the Ruby laser a suitable source for optical communication?" along "What material possesses sufficiently high transparency at such wavelengths?" These inquiries served as catalysts for the birth and growth of Fibre Optics, much like seeds planted in innovation that has the power to totally change the communication landscape.

Kao's questions sparked a strong wave of resolve and interest that spread across the scientific research channels. As they responded to Kao's provocations, the labs were bustling with activity. Extensive tests and theoretical discussions sought to reveal viable sources and materials with outstanding transparency. In pursuit of elusive solutions, scientists navigated a complex network of experiments. Their dedication extended beyond just studying science and took the form of an unwavering quest for technological progress, a resilient tapestry, and sleepless evenings filled with the excitement of discovery. In addition to looking for parts and laser sources, the mission was to establish a connection that would enable the transmission of human speech over hitherto unimaginable distances. The incessant efforts being made in laboratories around the world were driven by the goal of connecting people, communities, and worlds together.

Fibre Optics evolved gradually over several iterations, rather than appearing completely from nowhere. It came about as a result of extensive experimentation, constant recalibration, and trial and error. Every thread that was woven into this cutting-edge technology symbolised not just scientific discovery but also the tenacious pursuit of seemingly impossible goals and the resiliency of the human spirit. Nevertheless, a solid support system worked discreetly in the background amid the scientific intensity. Gwen May-Wan Kao was a silent force behind the scenes, but she was a tower of support and unwavering encouragement. Her unshakable faith in Sir Charles Kao's ideas and unsaid contributions laid the foundation for his ceaseless search for innovation.

The history of Fibre Optics is intricately linked to the everlasting innovation of Chinese people throughout history. It was a monument celebrating China's rich history of ground-breaking discoveries rather than just a single story about a person or a breakthrough. It highly regarded a range of modern and historical innovations weaved together to represent the country's constant commitment to innovation across time. It went beyond being a single incident or technical turning point, representing a long history of innovations that show how committed China has been to innovation throughout her history.

The historical journey of Optics goes beyond simple historical recall, echoing into the present and the future rather than simply existing as a light echo from the past. It is a captivating suspenseful composition that captures the unwavering creative force that entices individuals to explore new frontiers. This timeless tale stands as a testament to the creative capacity of the human intellect, showing that anything is possible if one has unwavering resolve, an insatiable curiosity, and an unrelenting drive for progress.

The epitome of innovation, Optics, muses over the convoluted path that led it to the universe of endless time. Optics weaves a path through the complex tapestry of its origins, illuminating the gleaming threads that result from the never-ending search for the perfect source and the ongoing development of materials. These memories bring us to a time when the discovery of light-guiding strands represented more than just a scientific finding; instead, it symbolised unwavering dedication and relentless pursuit of an endeavour.

This journey provides insight into the past as well as the future. In this reflection circumstance, Fibre Optics imparts consciousness to its existence in this reflection state. It sees itself as more than just a conduit; it wants to be an ethereal link that connects communities and continents, allowing voices and data to travel at speeds beyond the realm of the possible. It yearns to be the link that shrinks vast distances across the globe to fleeting moments, surpassing tangible barriers and uniting individuals on a global scale.

The tale of Fibre Optics and the understated yet vital part presented by Mrs. Gwen May– Wan Kao are perfectly interwoven in this radical story of invention. Her unwavering support and inconspicuous contributions were crucial in fostering Sir Charles Kao to pursue his ceaseless quest for novelty. Her silent support became an unseen but essential thread woven into the fabric of Fibre Optics' birth, highlighting the crucial support in the journey of trailblazing invention.

China's magnificent historical inventiveness melds smoothly with Fibre Optics, highlighting its contemporary technological marvels and enhancing its history of ancient inventions. Both historical innovations like the compass and paper, as well as today's incredible technological marvels like solar panels, WeChat, and TikTok, demonstrate China's unwavering devotion to innovation. The story of Fibre Optics' development gains layers of complexity and depth from this diverse terrain.

Fibre Optics' account of its development serves as a striking example of how technology is advancing, honouring Sir Charles Kao Kuen, the remarkable intellectual whose insight sparked a revolution. This narrative combines creativity, history, and the resolute nature of the human spirit to tell the tale of how this ground-breaking technology came to be. The way the plot unfolds is reminiscent of an old tapestry, with each thread cleverly woven together to form a timeless story. However, the story of Fibre Optics transcends time; echoing like a symphony, it echoes not only as a remnant of the past but also as a melody extending into the time to come. It democratises access to human knowledge and cultivates universal connectivity: marking a new era in history. It represents a sense of expectation and the unwavering core of ingenuity.

This story is an enduring tale that honours the boundless powers of the human mind and the unbridled heritage of wisdom. It is, above all, a monument to the never-ending pursuit of progress. The innovative and historically splendid story of Fibre Optics is a monument to human perseverance and the eternal potential of intelligence; this victorious seed is continually germinating and growing to an everlasting future.

Sustainable Inventions: From Paper to Recycled Cars

St. Stephen's Girls' College, Wong, Katelyn – 13

China created many inventions, and the most notable ones we all learnt about in primary school is, of course, the four great inventions – papermaking by Cai Lun, printing by Bi Sheng, the compass by Shen Kuo and gunpowder by Chinese alchemists. These inventions helped with the development of the world, and even to this day, we still use them, whether for a good or bad cause.

One of the most famous inventors is Cai Lun, a pioneer in paper making. Cai Lun was born during the Eastern Han Dynasty. Bamboo, wooden slips, shells or bones were used for writing or carving in ancient times. Some alternatives were silk and cloth, which were extremely expensive, so not everyone could afford it. As it wasn't convenient, Cai Lun decided to solve this problem by making paper himself. He boiled bamboo, old rags, tree bark and fishnet into sludge, and mixed the sludge with water after beating it. Then, he poured the mixture into wooden sieves, squeezing out the excess water. After drying the sludge, the dried residue called paper was ready to use.

In 105 AD, Cai Lun notified the emperor about his invention, and the emperor was quite impressed. Cai Lun was praised for his invention. This new invention was cheap, and the materials needed were easily accessible. The invention of paper helped with the development and the spreading of information throughout the world. Without this invention, generations might not have been able to pass on factual information or ancient traditions to modern times.

But with the rise of technology, electronic books are slowly replacing hard copies. Along with the changing times, artificial intelligence has recently become the newest trend and many countries strive to produce the latest AI inventions, hoping to improve the human lifestyle. China is the leader in artificial intelligence research and inventions. Not only that, they also invented self-driving cars which help improve accessibility for citizens, including people with disabilities. According to research by the World Health Organization, there were about 1.25 traffic deaths in 2013. Having self-driving cars will minimize traffic accidents, as they can prevent drunken drivers from causing car accidents.

Based on the invention of self-driving cars, I thought of an invention that would combine the newest technology with environmental protection. The invention I thought of is a self-driving recycled car. My invention can reduce gas emissions and slow down climate change, using the power of technology.

This car will be powered using electricity and solar power which will be provided by portable solar panels on the roof. The remaining solar power can be used for other purposes if some remains after powering the car. This will reduce gas emissions produced by cars. Not only that, the car won't be made entirely from its usual materials like new steel, but instead with recycled materials, micro-plastic waste and blended shells with bones collected from food waste. About 95% of vehicles are recycled every year. Think of how many cars there are! If we can use recycled car materials, it will reduce overcrowding landfills or junkyards with these large objects, and reduce over-producing different materials for cars, so it will minimize waste. Research stated that about 80% of a car is able to be recycled, so the suitable recycled materials can be mixed together to create a more environmentally-friendly car shell.

To address flat tyres, the car would be made using stronger materials. Old plastic bottles, flat tires, plastic utensils, recycled rubber and furniture would be combined to create tyres. Micro-plastic will also be added to create a tougher, more sustainable car tyre. Without all this waste, it would provide more space in the landfills and to protecting the nature.

The paint for the car will be made with a special substance called chlorophyll. Chlorophyll causes photosynthesis – making plants absorb carbon dioxide and release oxygen when encountering sunlight. By mixing chlorophyll with the usual vehicle paint, we will help increase the amount of oxygen and to reduce carbon dioxide. This can freshen the air quality in a polluted city. Chlorophyll paint can be mixed with different acrylics or pigmented colors and sprayed onto the car.

Finally, the car will incorporate technology of artificial intelligence. There will be a music system and GPS system built in. An AI assistant will also be added to the dashboard screen to provide suggestions for the route or popular holiday areas. There will also be two auto-pilot functions. One is the full self-driving mode, which enables the driver to sit back and relax while the AI takes over and drives the car. The other function is the semi self-driving mode. When AI camera sensors are set up around it, the car senses that an accident might happen, it will take over and avoid the hazard on the road.

This invention will benefit the future of citizens' safety and protect the environment, minimizing harm to the environment. As the power of technology improves every day, someday this invention might even become a reality. Who knows?

The key to inventing is creativity, curiosity, a desire to strive forward and improve. If the Chinese Taoist alchemists didn't have the curiosity to find the life-extending elixir, they wouldn't have discovered gunpowder! Without wanting to improve peoples' lives, Cai Lun would never have discovered paper making. If Bi Sheng didn't have the desire to improve the printing technology, we would still be using old stamps and carving letters into stone blocks.

All these Chinese inventors inspired us to let our imaginations run free, and to create something that will be useful and meaningful. During the brainstorming process, we can learn so much!

China: a Tapestry of Ingenuity

Victoria Shanghai Academy (Secondary), Van Olphen, Dani Pieter Mahmoud – 12

In the labyrinthine corridor of human history, one civilization illuminates as an iridescent beacon of innovation and development. You may wonder, what could this nation possibly be? This civilization is Ancient China. China is a land steeped in an existential understanding of wisdom, a resplendent tapestry of ingenuity.

Globally, it is acknowledged that Ancient China is home to some of the worlds most rarely recognized and heavily validated inventions. The Four Great Inventions of Ancient China were papermaking, printing, gunpowder, and the compass. China therefore was a world leader in ancient technologies. From this evidence, I propose that Chinese inventions have had a gargantuan impact on innovation and creativity on our planet as a whole. Furthermore, China's modern-day ventures of pursuing advancement in technology and transportation continue to inspire and lead the way toward a future of revitalization. In this essay, I will explore how this spirit of ingenuity might continue in the future, demonstrating how seeds were planted in the ancient inventions that have now bloomed in our modern day.

The first great invention, papermaking held great potential to impact society. Paper is a daily essential for the average human, used by the entire world every single day. 10,000 sheets of office paper per year are used by the average American. (O'Mara) The story behind the ingenious idea of papermaking all started in 105 CE. Cai Lun made this by pressing and soaking plant fibres, then drying them in sheets on wooden frames. This was revolutionary for Chinese people since paper was significantly cheaper and more practical than other forms of writing. (Cartwright) This demonstrates how China is ingenious since it shows how China was able to solve the problem of cheap and efficient forms of writing. Therefore, we can see how China is capable of solving its problems and also creating revolutionary inventions. This contributed to the ingenuity of China as earlier means of paper were far less advanced such as parchment or papyrus. China's modes of writing have been further developed to the point where it reaches the digital sphere. A notable example of this is the famous communication company, WeChat. WeChat has a completely digitized means of communication with instant connection via texting with anyone across the globe? WeChat has taken over paper as a faster means of communication, with 1.3 billion people using the app. With WeChat, China is deemed to be a powerful and leading figure in the industry.

The second great invention, printing, was responsible for the spreading of literacy. UNESCO estimates that around 2.2 million books are now printed every year. Printing is one of the most used essential technologies of today. Woodblock printing was the earliest example of printing, which involved transferring images and text onto sheets of paper using carved blocks of wood. The first real printing technology was done by using waxed paper, ink impression, and reverse image. Printing is done by applying ink to block, laying paper, and pressing. This is significant as printing was responsible for spreading different types of literacy, leading to higher rates of literacy in ancient China compared to Europe. Literacy is still a major part of our modern-day society as this is taught in our education and working systems. In terms of ingenuity, printing didn't become significant in Europe until the invention of the printing press in 1436. The fact that Europe was less advanced in such technologies shows that China is an original and influential inventor. This ingenuity has proven itself, with the unprecedented technology of 3D printers that can print houses. A Chinese business has reportedly created ten full-sized, detached single-story houses in a single day using massive 3D printers, according to the BBC. ("China: Firm 3D Prints 10 Full-Sized Houses in a Day") With China's original invention of woodblock printing, and now 3D House printing, we can see that China is a consistent tapestry of ingenuity. There is a problem of housing in China due to its massive population; with this technology, it is being addressed and shows China's ability to overcome problems with its innovation.

The third great invention, gunpowder, was helpful in siege warfare. Gunpowder is used in a variety of different weapons, such as a fuel for guns, artillery, rockets, and fireworks; it can also be used as a blasting agent for explosives used in mining, quarrying, and the construction of pipelines, tunnels, and roads. The backstory of gunpowder is rather fascinating as it was accidental. Around 1000 A.D., Chinese Taoist alchemists mixed elemental sulfur, charcoal, and saltpeter to create a concoction that would grant humans immortality; this is how gunpowder was created. It was useful for China in blockade tactics, to fend off invaders and helped defend and protect borders. Without such gunpowder, China would not have its enormous military advantage. English soldiers did not use guns or gunpowder in warfare until the Battle of Crécy in 1346. Therefore, the significance of this invention is that it was a necessity for China's military advancement advantage. In the present, we can see how China continues to make life-altering technologies to eventually surpass other countries globally with their military forces, which has been actively demonstrated with AI being used to help battlefield performance. Modern warfare technologies have been shifted to the cyber domain. Chinese researchers plan to upgrade nuclear submarines with artificial intelligence, aiming to create a \$150-billion AI industry by 2030. AI applications include cyber and electronic warfare, drone targeting, and battlefield decision-making. Ancient prowess has been further developed.

The fourth great invention, the compass, was a form of direction-indicating tool, which is widely used in navigation, exploration, and other fields. Compasses are used today to help determine one's orientation, especially when traveling in unfamiliar locations. During the Han Dynasty, lodestone—a magnetic iron stone—was used to make the first compasses. By the middle of the eleventh century, under the Song dynasty, it was known as the "South Pointing Fish" and was utilised for land navigation. ("History of the Compass") It was an everyday tool for traders and explorers, therefore, it had a profound influence on trade, war, and cultural exchange during the Han and Song dynasties. With our modern-day society requiring more efficient means of travel, China has constructed the infamous High Speed Rail system with success. China has constructed the longest high-speed rail network in the world, spanning 124,000 km, or more than 22,000 km. It ran 2,595 high-speed trains by 2016, which made up 60% of all high-speed trains worldwide. (王亚梅) When thinking back to the great invention of the compass and comparing it to the modern-day invention of high-speed rail, we can see how China has always been an involved and dominating nation in navigation and direction. In the past, an average explorer would plan their journeys for years and dedicate their lifetime to it. However, with China's invention, it has truly simplified the process of travel. The modern-day traveler just needs to catch a train and in a few hours, you will arrive on a whole new continent. China has continuously advanced its technology, to the point where its high-speed rail accounts for 60% of the world's network of high-speed trains.

In conclusion, with so many life-changing technologies and inventions, I believe China has proven its solid legacy and can only continue its reputation for ingenuity. The above-mentioned four great inventions had different impacts on different aspects of evolution. However, with these four great inventions, how can we predict the bright future of China? With the great invention of papermaking, we can see how this basic form of communication is now inevitably transforming into different forms, with the introduction of Artificial Intelligence into our lives. China has introduced already a new restaurant in Shanghai where robots are the cooks and waiters. Humans can now communicate in a further sophisticated way with China being ahead of the AI curve. China's early experimentation with gunpowder is now also seen in its adaptation of modern warfare using AI. China has developed a new form of warfare known as intelligent warfare, where weapons are now strategized to avoid casualties. In terms of printing, China has shown how she had managed to use 3D printing to create houses and hospitals in a matter of days during the COVID-19 pandemic, saving many lives with this quick ability to adapt to situations and emergencies. Furthering China's invention of the compass, China is pushing ahead with its respected high-speed rail technology that can connect with many countries. China has shown its dominance, by expanding its network with the creation

of the new Silk Road and we can anticipate a lot of trade and economic growth for China and its partner countries. China has shown its ability to craft influential inventions from the beginning of time, innovating these inventions, and creating new ones along the way up to these present times. We shall see and be amazed by many more great things that future China has in store for us!

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Liang's Revelation With Ink: The Birth of Woodblock Printing

Ying Wa College, Cheung, Ho Kiu – 13

In the ancient realm of China, amidst the bustling village residence, there lived a man whose brilliance surpassed that of his peers. This scholarly individual, known simply as Liang, possessed a profound love for books that bordered on obsession. His name echoed through the narrow streets of the village, whispered everywhere he went, for he was practically a legend among the locals.

On a particular day, Liang heard footsteps encroaching his front door. Shortly after, “Knock, Knock”, he figured that a visitor was here. Turns out it was Choi, the village chief with a task at hand for Liang to complete. He had to translate the Bible into Chinese with 500 copies. He tried to decline but there was no other choice. Liang was the only intellectual individual around. He was unable to decline with the knowledge in his hands and the anticipation of his friends boiling.

The next day, the sky was covered in an ominous cloak of grey, an imminent storm brewed in the distant horizon. The air hung heavy with anticipation, as if nature itself was aware of the storm raging within Liang's soul. The weather mirrored his inner turmoil, as he was deeply frustrated by the vigorously treacherous process of copying passages by hand from one piece of paper to another. As the rain drummed relentlessly against the roof tiles, Liang found himself confined within the walls of his comfy abode. The inkwell, filled with its pitch black liquid, stood as a catalyst representing his unyielding determination. Yet, with each painstaking stroke of his brush, his patience wavered, and his agitation grew.

In a fit of exasperation, Liang's hand forcefully slammed with the wooden surface of his work table, causing the inkwell to fly into the air and the ink to spill forth in a chaotic dance of droplets. As his eyes closely followed the ink's descent, a peculiar sight unfolded before him. The ink, like a silent serpent, slithered its way into the crevices of the woodblock, leaving behind an intricate trail of darkness. In that moment of revelation, Liang was simply in shock. His eyes widened as he beheld the marvel that lay before him. The ink, seeping into the wood's cracks, had birthed something extraordinary. Accurate and identical characters emerged from the once rough surface, as if the ink itself had gotten a mind of its own.

With a heart filled to the brim with excitement, Liang shared his discovery with his fellow scholar friends, who marvelled at the ingenuity of his accidental creation. He immediately travelled abroad to spread the word to others about his brilliant invention. He travelled to large cities such as Beijing, Shanghai and Hong Kong. Many of the presentations were successful with the scholars flabbergasted. They too, were bewildered by the ink's ability to create perfectly intricate characters onto the smooth sheet of canvas. The news of this miraculous invention spread like wildfire, igniting a craze among the villagers. Word of Liang's newfound technique reached the farthest corners of the town, sparking curiosity and wonder amongst the people. They flocked to witness this remarkable phenomenon, eager to witness the birth of a new era. Word of the village's cultural innovation reached the imperial court, capturing the attention of the Emperor himself. Impressed by the profound impact of woodblock printing, the Emperor bestowed upon Liang a prestigious title, recognizing his invaluable contribution to the realm's cultural heritage. He was also given the crucial task of translating many famous western books into Chinese, allowing for the literature we have now to be accessible to the ancient Chinese and us. Liang, who was propelled by a thirst for knowledge, embraced the opportunity to share his invention with the world and make his name known to the world.

The art of woodblock printing, as it came to be known, spread as quick as a flash of light throughout the land. Liang's humble village became the epicentre of this revolutionary technique, as artists and scholars all honoured Liang's craft. The written word, once limited to the realm of tiring copying, now flowed effortlessly from the hands of skilled craftsmen. As the ink-drenched woodblocks were pressed onto paper, the characters emerged with unparalleled clarity and precision. The collective wisdom and imagination of countless ancient Chinese minds were immortalised

in ink, capturing the essence of ancient China's rich culture and heritage. The printing press became a beacon of enlightenment, illuminating the minds of the masses and bridging the gap between the literate and the illiterate people in the country.

Liang, the brilliant pioneer whose frustration birthed a revolution, stood at the forefront of this transformative era. His legacy, which has been forever etched in the cloth of history, served as a symbol of the power of creativeness and the boundless potential of the human mind. In the realm of ancient China, amidst the stormy weather that mirrored Liang's rage inside his heart, a profound discovery emerged. Through a very accidental accident, the ink's dance with the woodblock birthed a revolution that forever changed the course of history. And thus, the art of woodblock printing was born, bringing with it, a new era of knowledge and enlightenment.

China's Great Leap in Nuclear Fusion Technology

Ying Wa College, Lam, Bok Man – 14

Since the Industrial Revolution, fossil fuels have been the main source of energy. As a result, global warming has proven to be one of, if not the most pressing issues present worldwide. Moreover, the constant growth of population has given rise to another dire problem – Global energy crisis, that is, constantly increasing electricity and gas prices across the globe. Now, you may ask: How do we solve these problems? Well, there is one technology that many leading countries are researching, with our home country China leading in research – Nuclear fusion energy, the holy grail of clean and renewable energy.

Before we talk about nuclear fusion, there are some things we first need to understand. Why are these problems so difficult to solve? Why not just build more burners, or use renewable energy? Well, it is not as simple as that...

Since the beginning of human civilisation, our energy consumption has been increasing exponentially. To tackle this, we have found exponentially increasing efficient methods to obtain energy. For example, the discovery of fire has led to an explosion of groundbreaking technologies for the time such as cooking. Another great breakthrough was the Industrial Revolution in the 19th century when we started burning coal and oil. The drawback of this was that these burners released extreme amounts of carbon dioxide, and the intensified greenhouse effect was not noticed until decades later. Is this really all we have for making energy? Well, we still have nuclear energy, which involves splitting heavy atoms, but the resource used, uranium, as well as the side products, are highly radioactive, which could cause cancer and mutations.

So, how is fusion energy so much more reliable than burning coal and nuclear energy, then? To answer this question, fusion energy is at least four times more efficient than nuclear energy while at the same time being completely safe to the environment. These will be explained in further detail later.

After all that, what even is nuclear fusion? Nuclear fusion involves the collision and merging, or fusing, of atoms. This is the very process that holds our host star, the Sun, together. In the core of the Sun, temperatures reaching 15 million degrees Celsius creates a hot plasma where hydrogen atoms can freely collide and fuse into helium, creating an outward pressure that pushes against gravity. This kind of energy is what we are currently researching for, in a sense putting the Sun on Earth to harness its energy.

With that said, China has been actively researching nuclear fusion, and unbelievably, our country is the leading country in terms of research, with multiple major breakthroughs in just a few years' time. So far, China has constructed a large network of fusion reactors across various locations in major provinces, such as the China Fusion Engineering Test Reactor, or CFETR and the EAST reactor in Hefei, Anhui, as well as the J-TEXT reactor at Wuhan. Recent breakthroughs in fusion technology have also appeared: the Huanliu-3 fusion reactor has 'realised high-confinement mode operation with a plasma current of one million amperes', according to the China National Nuclear Corporation, which marks an important milestone in China's fusion research, as well as in the global development of fusion energy.

This begs the question: Is nuclear fusion energy an extremely advanced technology only to be fully implemented in the distant future? Well, nuclear fusion on certain levels have already been fully understood by scientists, however these levels are either too insignificant or so effective it becomes dangerous.

On one extreme, we have the particle accelerator. It is capable of carrying out nuclear fusion, speeding up atoms to near the speed of light. However, more energy is used to support the reaction than the total usable energy output, making it only for research purposes.

On the other end of the spectrum, we have the hydrogen bomb. It is also capable of carrying out nuclear fusion, causing a chain reaction that releases so much energy in the process it destroys entire cities upon detonation. It is extremely uncontrollable, making it impossible to efficiently use the energy.

The balance of these two extremes will be the benchmark for nuclear fusion energy, where we could control the magnitude of energy output. We have already managed to release more energy than we put in, making a net power output. We just need to sustain the reaction for long enough, which is predicted to be possible by 2035.

Now, we will talk about the multiple benefits fusion energy will provide once implemented on a large scale. Firstly, and most importantly, it is a completely clean energy source, releasing no greenhouse gases at all while needing little to no radioactive materials. Fusion energy forms helium-4 after reaction. This is the most common and stable isotope of helium and is completely safe even when inhaled. It also poses no harm to the environment, as both marine and terrestrial wildlife are unharmed when in contact with helium-4, as well as not absorbing heat nearly as much as greenhouse gases such as carbon dioxide and methane. The reactants needed for nuclear fusion are also safe, being deuterium, a stable isotope of hydrogen, and helium-3, which is also stable. These factors will greatly alleviate, if not completely solve, the issue of intensifying greenhouse effect, and when paired with reforestation, we may even start to see a decrease in global carbon dioxide levels. The nature of fusion reactors also removes the possibility of a meltdown incident, as the reaction is difficult to sustain and only a small amount of fuel is used at a time. Therefore, there is no risk of a runaway chain reaction that could cause explosions, guaranteeing the safety of nearby civilians.

Secondly, fusion energy is easily renewable. The reactants, as mentioned, are deuterium and helium-3. Deuterium can be commonly found in sea water as what we call 'heavy water' and can be extracted through electrolysis. Helium-3 can be found in large reserves on the surface of the Moon, which can be extracted in the near future when space technology is more advanced. This removes the worry of running out of fuel to keep fusion reactors running.

Thirdly, fusion energy is extremely efficient and can generate an enormous amount of energy in a relatively short period of time. Research has shown that the energy output of a single kilogram of nuclear fusion fuel equivalates to burning 10,000 tonnes of fossil fuels. This will greatly boost the energy output potential of our civilization, allowing for more advanced inventions and discoveries, as well as the opportunity to advance greatly in space technology and exploration, potentially allowing us to quite literally reach for the stars in the future.

In conclusion, China has taken a great leap in the advancement and development of nuclear fusion technology, and if successful, will change the world forever, giving rise to a new era of human civilisation, with great inventions and a prosperous future ahead for us to unravel.



Creative Writing
Non-Fiction
Group 3

New Tales of China's Inventions

CUHK FAA Thomas Cheung Secondary School, Lam, Chun Yu – 13

I admire the long history of Chinese culture. I praise the wisdom of Chinese culture. At the same time, I love the spirit of Chinese culture. From the Four Treasures of the Study to the Four Great Inventions, from hieroglyphics to simplified Chinese characters, these all reflect the great amount of Chinese culture and the unique wisdom of Chinese culture. However, in the 21st century, which is driven by ever-changing technology, we need to inject new wisdom into Chinese culture and give Chinese culture a bright future.

In recent years, China has entered a period of rapid development. Science and technology in China have advanced in a unique way. Besides, from Made in China to Created in China, it not only reflects China's achievements in science and technology, but also allows high-quality and low-priced products selling to around the world. It proves that the fresh wisdom has been inspired by Chinese culture.

China's high-speed rail is a channel that brings China to the world. Chinese culture will also be carried to every corner of the world. As a new mode of transportation, high-speed rail is faster than trains and more convenient than airplanes. More importantly, China owns complete independent intellectual property rights.

On National Day, my parents took me to Guangzhou by taking high-speed rail. This was my first time taking the high-speed rail. I thought it would be fun, so I couldn't wait to set off with my parents. When we arrived at the station, my father gave me the ticket, checked it and got on the train. "Let's go!" I shouted excitedly and walked to the platform. At this time, a high-speed train arrived. Wow, this train is so beautiful! The long body is like a dragon, and the shining car lights look like its eyes. It warmly welcomed us to get on the train. When it started moving, it ran so fast! The scenery beside me flashed before my eyes. Sitting in the train, I felt like sitting at home; the train was very stable and comfortable!

The Chinese Dream is not a grand vision for people to look up. Chinese people have been working very hard to make the dream come true. Chinese technology is developing, and society is progressing! Our world is more exciting because of the development of science and technology.

Omnipotent Robot

CUHK FAA Thomas Cheung Secondary School, See, Kak Kak – 12

All kinds of inventions make our life more convenient. What if scientists have invented a robot who is omnipotent, and you can ask him to do anything?

He can take care of your life instead of your parents. Before you get up in the morning, the robot will have made breakfast for you, then wake you up on time, send you to school, and ensure that you arrive at school safely. He will pick you up from school, help you with your homework, answer any questions you don't know, and help you study for exams.

He can also clean up the house. He sucks all the garbage in the house into his stomach like a vacuum cleaner. The room will be clean after he has cleaned it, and the garbage can be converted into energy, so you do not need to be charged for throwing it away, and it will be very environmentally friendly.

When someone knocks on the door, it will automatically identify whether you know the person outside the door. If it encounters danger, he will immediately call the police. It also has combat features, effectively protecting your safety.

This robot reduces the burden of parents, makes our life more convenient, and there is no need to waste time on some piecemeal things.

New Tales of China's Inventions

CUHK FAA Thomas Cheung Secondary School, Yim, Wing – 12

In recent years, the science and technology development in China have been making great progress. There are so many innovative inventions that upgrade our lives and can benefit people's quality of living. For example, high-speed railway systems, electronic payment systems and bike-sharing improve a lot of people's daily lives by bringing us convenience and efficiency. As technology advances continuously, more and more new inventions are expected to come up in the near future. One potential invention that is very likely to be produced and is much needed is a newest model of a full-time robot assistant for everyone in the world.

This brand-new innovation will come in sizes as tiny as a portable USB or as large as a giant gorilla. Its appearance can be changed according to the wants and needs of the owner. It can come as the image of an animal, a person, or even an object. By this time, you might be pondering why this robot needs to be in such strange forms. Let me shed some light on this. This is because this novel, high-tech, powerful, helpful, and wonderful robot will have the ability to provide assistance to its human friends in any way, anytime and anywhere.

For instance, when the owner is sick, the robot can transform into a doctor to check on him or her and advise on which medicines and what kind of food to take, followed by transforming into a Foodpanda delivery driver to bring the painkillers and chicken congee home for the owner. If a lonely old lady brings this robot home, it can transform into a fun-loving and smart service dog to keep the lady company and monitor her health. And what about turning into objects? Doesn't it sound weird? No, not at all! Because there are times we need help from objects such as a hand truck to carry heavy groceries or an air conditioner to give us fresh air on sizzling hot days. This transformation can be done instantly based on the owners' orders. What's more? The robot can actively monitor the owners' physical and emotional needs and advise on the need of transformation.

This invention can be very beneficial to the elderly with medical conditions who are living alone, physically or emotionally fragile patients, single-parent families, children who need a friend and anyone in need. I hope China will be able to create such a helpful invention for the world in the near future.

New Tales Of Chinese Inventions

ELCHK Lutheran Academy, Cheung, Nga Wun Isa – 12

China has been known for its significant cultural heritage, long-standing customs, and outstanding achievements in a variety of fields, it also has left a lasting impact on human civilization. Glasses have an old history in Chinese inventions, and they are still very useful nowadays.

Let's start with the history of glasses in Chinese culture. The glasses that people used before look really small and the shape is mostly round or circular. The colors that they mostly include are black, brown, gold and green. Inventing glasses was a brilliant idea because it helps a lot of people who need to protect their eyes from the sun or even prevent eye diseases. Glasses were first originated in Italy by Salvino D'Armato but when it was introduced to China it became immensely popular among scholars, officials, and individuals with vision problems, and was first modified by the Chinese in the 3rd to 4th century (around the Han dynasty.). During this period, glasses had become increasingly popular. Craftsmen started creating elegant and beautiful pattern frames out of metal, bamboo, and etc.

Nowadays, we can have electric glasses. They are very cool, you can make phone calls, send messages and even have navigation, etc. You can also control the colors of the glasses, that's why many people say it is very fashionable and matches different types of color tone. People feel safer using these electronic glasses while you use navigation. It leads you the way to your exact destination. It has different ways and modes of using it, for example: having arrows leading you to the right path throughout the glass-monitor, and having voices to tell you the direction. And the coolest thing is, you don't need to use your phone, you are handed-free to do other things with your hands. No more head-down while using the navigation. With a simple voice command, users can name their glasses and require them to do their tasks such as making calls or sending messages. For example, they can say, "Glasses, call (XXX)" or "Glasses, send a text to (XXX) about what we should eat for dinner today." These glasses are like phones but easier to use and handle, making them one of the greatest inventions.

In recent years, China has been a global leader in the development and manufacturing of glasses. Modern technologies have been used by Chinese businesses to create high-quality glasses. Furthermore, Chinese manufacturing has been making more fashionable glasses that turn out to a wide range of fashion interests. We can see the changes in the history of glasses. In the old days, it was just a pair of glasses that helped us see the surroundings better and cured poor eyesights. Now we have electric glasses that are suitable, very stylish and fashionable. Glasses are one of the greatest inventions in Chinese history!

Ancient Chinese inventions: Pioneering Achievements that Shaped the World

ELCHK Lutheran Academy, Poon, Lok Tung Hilary – 12

China is a country with a particularly rich and ancient civilization, that can look back on an incredibly long history. Over the millennia, China has made enormous progress. The Chinese have contributed to various fields such as art, philosophy, literature, science, technology, governance and so on. Chinese civilization is known for its long history of remarkable and significant inventions and technological achievements. Let us go embark on a journey through time and discover the extraordinary innovations that have left an indelible mark on our modern world. The invention of paper is an advanced science and technology in ancient China. The invention of paper traditionally dates back to 105 AD, when a chamberlain of Emperor Ming (Cai Lun) gave paper to the emperor in the first year of the Yuanxing era. The invention of paper had a great impact on mankind. In ancient China, paper was often made from bamboo. To make paper, you first cut the bamboo. Finally, the paper had to be pressed to dry to remove the water and then hung it up to dry.

Why did the Chinese have to make paper? Because the Chinese engraved characters and symbols on animal bones and turtle shells. However, there is a problem when you use these things for writing, because if you write on them, you cannot erase your writing because it has enlarged in the bone or shell, and it's very annoying if you must rewrite the whole text because of a misspelled word. It's not so great for the turtles either, because sometimes the Chinese engraved letters into living turtles, and that's not so nice for the turtles. So, some Chinese thought of using bamboo to replace the turtles so it wouldn't hurt them, but there's another problem: bamboo is too heavy to carry a book around, and you need two men to carry it. They invented an ink that could be used with the silk, it was light and portable, but silk is very expensive and the process of making silk kills a lot of silkworms and it's a lot of work to make silk.

Given these challenges, the invention of paper revolutionized the writing and communication systems in ancient China. It provided a light, easy to make, and cheap product that had a big impact on the world and continues to help people in modern life.

The discovery of gunpowder in ancient China was a crucial milestone in Chinese history. Gunpowder is a mixture of saltpeter also known as potassium nitrate, sulfur, and charcoal. Together, these substances will burn quickly and explode. Chinese monks discovered this technology in the 9th century BC when they were looking for a kind of immortality medicine.

The Chinese believed that the power of gunpowder could drive away evil spirits and confer immortality. However, the Chinese quickly recognized the explosive properties of gunpowder and began to explore its military uses. The Chinese used it from the 11th century onwards. It was originally used against enemies in the form of fire arrows and flaming projectiles. The discovery of gunpowder in ancient China had a significant impact on warfare, leading to the development of firearms and changing military history. It changed the battles that were fought, and it contributed to the decline of traditional chivalric warfare. Today, gunpowder is no longer the primary explosive used in modern firearms and explosives. Nevertheless, the discovery of gunpowder in ancient China was a crucial milestone in human history, influencing technology, warfare, and some global interactions.

Then, we have Chinese acupuncture. It was invented several millennia ago around 8000 years ago. The oldest Chinese medicine book "Neijing" also known as "The Classic of Internal Medicine of the Yellow Emperor" tells us that acupuncture was often used as a therapy in China a long time ago. Besides that, various kinds of acupuncture needles were discovered in Prince Liu Sheng's tomb. Prince Liu Sheng died at around 200 B.C. This is further proof that acupuncture was already in use in China more than two thousand years ago. Earlier instead of needles, sharpened stones and long sharp bones were used around 6000 BC for acupuncture treatment.

How was acupuncture performed? Acupuncture is done by using needles that are as thin as your hair. The needles are then inserted onto your body, onto your skin or sometimes deeper into the muscle. The needle is inserted onto a point that produces a sensation of pressure or ache, needles may be heated during the treatment. Acupuncture points are believed to stimulate the central nervous system. This releases chemicals into the muscles, spinal cord, and brain. These biochemical changes may stimulate the body's natural healing abilities and promote physical and emotional well-being. Some people say that acupuncture has minimal pain where the needle is inserted. Some people report acupuncture makes them feel energized, whereas others say that it really hurts.

Next, we have the earthquake detector. The earthquake detector was invented nearly 2000 years ago in 132 AD by a Chinese inventor called Zheng Heng. The earthquake device was remarkably accurate I could measure earthquakes from far away, the device did not rely on shaking or movement. In the past Chinese people didn't understand that earthquakes were caused by the movement of the tectonic plates on the earth's crust. Although we still cannot accurately predict earthquakes, we have come a long way in detecting, recording, and measuring seismic shocks. A lot of people don't realize that the earthquake detector was invented over 2000 years ago. Zhang Heng's earthquake detector was able to determine the direction of an earthquake hundreds of miles away.

Zhang's earthquake detector was a giant bronze vessel, it was almost 6 feet in diameter. Eight dragons snaked face-down along the outside of the barrel, marking the 8 compass directions. In each dragon's mouth was a small bronze ball. Beneath the dragons sat eight bronze toads, with their broad mouths gaping to receive the balls. His device also included a vertical pin passing through a slot in the crank, a catch device, a pivot on a projection, a sling suspending the pendulum, an attachment for the sling, and a horizontal bar supporting the pendulum. The mechanism that caused a ball to drop in the event of an earthquake is still unknown. But one theory was that a thin stick was set loosely in the center on the barrel, and the earthquake would cause the stick to fall down and fall onto one of the 8 directions causing a dragon to open its mouth and release a ball.

In 2005, some scientists in Zhengzhou (China), Zhang's hometown, succeeded in recreating Zhang's earthquake detector and using it to detect simulated earthquakes based on four different real earthquakes, and all the data collected by the scientists was very accurate and all the tests were consistent with previous results!

Then, we have the compass, the compass is a navigational device that shows direction. It was invented by a Chinese person the compass was first used for worshiping, and fortune telling and geomancy, which means the art of aligning buildings. In the late 11th to the early 12th century, some Chinese sailors adopted this gadget for astronomical and terrestrial navigation purposes. Making a new era in the history of navigation.

How does the compass work? In the compass a small, long, magnetized needle is placed on the pivot so that it may rotate freely in the compass. It uses earth's magnetic field to exert a force onto the compass needle causing it to rotate in the same direction as the magnetic field. That is how it can tell you the direction of where you are going!

The Chinese also invented alcohol. Alcohol was invented at around 1600 BC. Alcohol is known as Jiu in China and is often used as a spiritual offering to Heaven and the Earth or ancestors in ancient China. In 2013, a 9000-year-old pottery found in Henan province, this revealed that the presence of alcohol has existed very long time ago. Chinese people used to make alcohol in clay pots, it has been revealed that people were making an alcoholic beverage from fermented rice, millet, grapes, and honey.

There are so many notable ancient Chinese inventions, but these inventions represent just a fraction of the remarkable contributions made by ancient China. The Chinese have created so many unique inventions from edibles to gadgets! China is a very interesting country. The country has come a long way since everything started. I think that the Chinese have created many great inventions! The Chinese had made things from groundbreaking technological achievements to amazing creations. These remarkable inventions not only transformed their own society but also had a profound impact on civilizations far beyond China's borders.

Whispers of Threads

G.T. (Ellen Yeung) College, Tai, Ellie – 14

Speaking of Ancient China, many remarkable inventions come to mind. Tea, gunpowder, compass...China is the land of great inventions, resourceful ideas and world-changing inspiration that profoundly improved human civilization. Without them, human lives would have been far less convenient. However, among all these innovations, papermaking plays the most significant role in China's inventions.

Before papermaking was invented in China, the lives of Chinese were largely different from now. They had other methods for writing such as using bamboo strips and animal shells. They carved word by word with sharp tools, which is extremely time consuming and laborious. Once there is a single mistake carved, there is no going back, therefore the ancients may have to start carving all over again. Additionally, the materials used were bulky and expensive, limiting the availability of usage. Therefore, it strongly affected the spread of knowledge and communication among people, stimulating them to create new materials for writing.

Although papermaking seemed to be invented in Egypt first—the first true papermaking process was invented in China during the Eastern Han period by Cai Lun. He was an eunuch court official of the Eastern Han dynasty, born in around c.50–62 CE in Leiyang and died in 2023 in Luoyang, the Imperial capital.

Cai Lun observed that the demand for writing materials was growing fast in China, so he conducted extensive experiments to invent a more convenient and efficient material for writing. The first paper was rumored to be made in the backyard pond of the Cai household. He found new materials to replace the traditional bamboo-and-wood scrolls, such as mulberry bark, which is the bark of a paper mulberry tree, thin and fabric-like. Other materials include fishing nets, hemp waste, boiled bamboo and old rags.

The sheer complexity of the Papermaking process has awed both Chinese and Western historians alike. Up till this day, they were still intrigued by Cai Lun's intellect. First comes the fibre preparation: after gathering all materials needed, Cai Lun soaked them in water to soften them. Next in line would be fibre maceration: they were beaten down into individual fibres to create a pulp. Then, pulp formation: the fibre pulp was mixed with water to create a suspension and agitated to ensure uniform distribution and remove impurities. Additionally, sheet formation: a screen-like mold was dipped into the pulp suspension then lifted out to allow excess water to drain through the screen, leaving a thin layer of fibre on the screen. Furthermore, pressing and drying: the wet fibre layer was transferred to a cloth for compression to squeeze out water. Additional layers of wet fibre sheets and felts were stacked to form a pile. Moreover, continued pressing and drying: the piled sheets were then subjected to further pressure using heavy weights, to remove remaining moisture and bond the fibres together. Finally, polishing: once the sheets were sufficiently dried, they were separated and smoothed using shells or stones, to achieve a smooth writing surface.

The papermaking process that Cai Lun thought of was a success. Because although the materials used were abundant and cheap, they still could create a high-quality paper product. The paper made was also light and portable which its adaptability was wide over China, helping the spread of knowledge and facilitating communication. His papermaking method gained support and promotion from the imperial government, which later on established the credibility and acceptance of the new technology among the ruling elite and the broader population. As it is widely used in China, through interactions between travellers, people have successfully facilitated the transfer of papermaking knowledge across different regions within China and beyond its borders. His invention brought accessibility to affordable writing materials that allowed more people to engage in reading and writing. Paper is also light and portable, easing the problem of being bulky when using bamboo. Papermaking itself created employment opportunities and economic growth, also brought other economic benefits such as ink production and printing. It also helped to expand literacy as more people engage in reading literature, it can empower individuals, promote education and facilitate communication between people. Soon, Cai Lun's papermaking method spread widely in China and all over the world. He was later referred as the "Father of Paper".

But nevertheless, the papermaking process was not necessarily easy and fast compared to the modern papermaking process. As Cai Lun's method required intensive labour, skills, time and machinery, it was never easy to adopt it in today's modern world; therefore, multiple refinements were taken place. For the first one, it was industrial papermaking which modern machinery and technologies are used to produce paper on a large scale, involving traditional processing steps similar to Cai Lun's such as pulping, pressing and drying. It was a crucial part of the modern society as it is the primary means of producing paper on a large scale and meeting the demands of modern society.

After that in recent years, people have started to realize the importance of recycling and sustainability. Recycling technologies have been implemented to reuse paper waste and minimize the negative impact it brings to the environment, also exploring alternative fibre sources to reduce reliance on traditional wood pulps.

And nowadays after many years of refinements and innovations, the papermaking process has a huge turn. Firstly, the fibre preparation is carried out using wood pulp, recycled paper and agricultural residues for the removal of impurities and preparation of papermaking process. Secondly, the fibres are further broken down through mechanical or chemical processes to create a pulp. Thirdly, the pulp is mixed with water to create a slurry, which is then fed onto a paper machine that consists of formation, pressing, drying and finishing processes. Lastly, the finished paper is cut into desired sizes and may undergo additional processes like folding, creasing, or binding, depending on its intended use. Then the paper is packaged and prepared for distribution. The process is much faster and easier with modern technologies, the quality is also much higher.

Therefore, we can see how the modern papermaking process differs from traditional papermaking, for example through the scale of production: traditional papermaking processes are often small-scale while modern papermaking is often conducted on a large industrial scale in high volumes using advanced machinery. Also, traditional papermaking uses fibre sources mainly from nature such as bamboo sticks, but due to environmental issues, modern papermaking uses fibre sources mainly from recycled paper. Moreover, traditional papermaking has no quality control while modern papermaking incorporates rigorous quality control measures throughout the process such as sensors to monitor and adjust parameters, to obtain a favourable paper thickness. So actually as time passes, the papermaking process has also improved to the one in our modern world today.

China has received much criticism in both past and recent years, both politically and culturally. But the majority mostly overlook that the past has a major influence in our current lives. Past inventions are like solid pieces of building blocks; they are the base of technology and improvement. Papermaking has given the rise to the publishing and printing industry which has had a transformative effect on media and literature worldwide. It also plays a vital role in packaging materials for storage which is sustainable in commerce.

Papermaking makes our lives much more convenient and has a huge positive economic impact around the world. Up until this day, Paper is still widely used.

Find a paper and observe closely—can you see the hard work centuries of Chinese has put in behind a single piece of paper?

New Tales of Trains and Railways

G.T. (Ellen Yeung) College, Zheng, Elyn – 14

Inventions contribute greatly to the development of a country. It symbolizes the growth of complexity, promotion of better technology and more consummate living standards. From the ancient times to nowadays, inventions have noted eras in people's minds for every century.

China is a spectacular country which has a rich history of scientific and technological innovations that date back thousands of years. From the first compass and gunpowder to papermaking and printing, these are wonderful inventions that are thought to be impossible in ancient days as historians believe the maturity of technologies that time compared to modern ones are way too rusty, even though people are intelligent and ingenious. Nevertheless, the truth is the citizens living in ancient China used their knowledge and resources to create numerous inventions that astonished the world. To sum up, China's contributions have shaped the world we're living in today.

In recent years, China has been experiencing a remarkable surge in innovation and invention, making significant strides in various fields. Scientists and historians often are interested in exploring and shedding light on China's inventions, no matter whether it is usable in the past or the present, highlighting the country's cutting-edge advancements and their global impact. Today, in this essay, I would like to introduce the great history of trains and railway transport in China to the world.

About 221 B.C., in Tang dynasty, there was an unknown man who made a simple gharry driven by strong horses for his pregnant wife. This gharry is handmade with bamboo sticks and wood pieces. Inside the gharry, there was a cozy area where the person could lie supine in order to rest on the trip. The man's wife showed great affection for the handmade gharry and claimed that it was comfortable and well-designed for travelers. However, she declared that the gharry was jolting rapidly during the trip and nearly made her fall. The man was puzzled but still promised to fix the problem. After a few weeks of researching and exploring, he found out that the inner design of the carriage was not perfectly shaped since the supporting rods didn't act as a force to hold the entire gharry and that explained why turbulence still happened on flat roads. Unfortunately, there weren't any screwdrivers or spanners at that period of time. All the men could use were knives made by seashells and axes made by molten iron. Thus, the man was unable to fix the issue for his beloved wife and was extremely devastated at the end because his wife experienced miscarriage during a long trip on his gharry accidentally.

This was definitely a sad story smeared with grief and suffering. But, the story showed that citizens in the Tang dynasty had already started to invent transportations similar to the railways and trains nowadays in China. They aimed for exactly the same item and application with us!

Surprisingly, the footsteps of railway and train explorations had stopped for a few decades until another child named Cheng Meng appeared to the stage of history. One day, Meng demonstrated how his train model worked. He plugged the strips and the train started moving on the wood railway. This shocked his mother as she had never seen trains before and had completely no idea what it was. Luckily, she didn't scold the boy for doing nonsense, instead, she listened to her boy about how fun the train model was, until the boy told her he wanted to produce this type of transportation for the country in the future. She realized that her child wasn't ordinary and had different thoughts compared to children of the same age. The woman immediately informed her husband and sent Meng to the feudal official. The officers were astonished by his designs as well and used it as the blueprint for the new type of railway

transportation. After ten years, Cheng Meng, had become the first man ever who invented the earliest railway and train carriages.

This story might be amusing as we would seldom use a 10-year-old child's drawing to be the blueprint of a design. Regardless, the officers in the play didn't disdain a child's imagination and applied it onto the discovery. In the end, they fulfilled a child's dream and contributed a lot to the residents living at that time, including economizing time for travelers, local citizens who had to walk from one place to another originally and poor families who aren't able to bear the price of a horse or cow carriage.

To be precise, no significant events happened after the Tang dynasty about railway and train development until the Qing dynasty, approximately seven hundred years later. The first railway and train in China were built during the Qing dynasty in the late 19th century. It was called the 'First Railway and Train' in the view of the fact that its maturity and safety are enhanced and more advantageous than that of the earlier ones in Tang dynasty. Notwithstanding, it got dismantled owing to the refusal of the Qing government. The arrival of this railway and train wasn't utterly because of creativity but was due both to the lack of industrialization and skeptical attitude of the Qing government. Although diverse and prominent personages such as Lin Zexu and Taiping Rebel Hong Rengan called for the building of railways and trains services in China, the conservative Qing court considered steam engines to be 'Clever but Useless' contraptions, and resisted the opinion about railways, which would have rescued the refugees from all over the country to escape from war-footing areas, and the train, which would have carried tons of passengers to a safe place to seek for asylum.

Soon after World War One, the Chinese government recognized the significance of building railways with trains along the settlements and mineral rights because they both facilitated ordinary people and the transfer of military devices and war materials. Therefore, they insisted on developing and upgrading the railways and tried to make connections between them in order to smooth out the routes of the trains. The first railways and trains extension map was then introduced by constructing long-term railways from Shanghai to Nanjing, equipped with one eleven-carriages train per railway. Although the construction process was difficult and tiring, it was worth trying as the official results about railways and trains were successful and indeed, neat and practical.

In the modern era, after numerous times of trying, making errors and correcting them, China has developed an impeccable set of railways and trains routes map. Throughout the whole country, we can see a well-equipped train station in every city. This extremely conduces to the daily life of citizens, not only for military usage in the past.

In 2001, the Chinese government embarked on the construction of high-speed trains on railways. This type of train is expected to have a full speed of 400 km per hour, become a safer transportation, reduced turbulence compared to old trains and exquisite inner space designs to provide comfy trips for the travelers all over the world, not just localized in China. Additionally, the Chinese government announced that they would extend their routes to western areas in China where ethnic minorities live and might towards outer lands such as New Delhi, the capital of India! After all, researching and developing requires time and effort: we shouldn't be harsh and hurrying. I believe that the most fantastic, fastest, safest and most comfortable train and railway trip can be shown to the public promptly and astonish the world one more time.

Ultimately, China's rapid rise in innovation and invention, especially the development of railways and trains, is shaping the world in profound ways. From advancements in transportation and quantum technology to renewable energy and space exploration, China's contributions are transforming various sectors and industries. Unanswerable,

China's journey of innovation and invention is far from over, and the world eagerly awaits the next chapter to be disclosed in its remarkable story.

From the past to modern times, inventions are essential in elevating our living standards. At first, the people in ancient China doubted about the development of trains and railways because of the fact that they need time, effort and large amounts of capital, until a few ordinary people who were brave enough to face the consensus and obeyed his or her own opinion instead of falling into the tsunami of vox populi. At last, they finished an invention but were still questioned by innocent citizens and might even get into trouble. After the washing of time, people gradually trusted the invention and forgot the great inventor who contributed to their lives. Although this process of getting in trouble, going through devastating hours and being forgotten by people might happen, we should still burst our imagination and let our creativity soar in our daily lives, which at least makes our days better and become people who are full of vitality and always interested in discovering new objects and inventing quick-witted inventions!

The Story of Tea

Good Hope School, Ip, Kalam – 12

After pouring boiling water into a cup filled with tea leaves, the water then turns into a bright, beautiful, orange-brown, the steam and aroma arise from the cup and stimulate the senses. This is tea, a fragrant beverage brewed from leaves that captivated people all across the globe. With a wide variety of flavours, its bitter yet soothing taste attracted everyone and has now become one of the world's most-loved drinks. One whiff of it can make you feel energetic, drunk and in love. However, tea was not always how it is now.

Legend has it, on a breezy day, the first Yan emperor Shennong was resting after a long tiring journey with his men. Feeling thirsty, he asked his servant to prepare him some water. The way he preferred his water was rather unusual. He liked his water first boiled and then served. As a herbalist, his water always needed to be cleansed before consumption. Upon serving the water to Shennong, a dead tea leaf carried by wind went into the cup of water the servant was grasping. It was served unnoticed by the servant. The drink had turned into a subtle brown colour that intrigued the emperor. He drank it and found the taste and aroma emitting from the drink quite peculiar yet refreshing. He was taken aback by the sensational taste. A lot of people believe that this was how tea as a beverage came about.

Some people believed that it was discovered as a medicine first before being considered as a drink. Shennong was known for being a great herbalist alongside his role as the emperor. He tasted and tested numerous leaves to see if they were useful for his medicine research but he had fallen sick after consuming 72 poisonous leaves. His condition was fatal, he could've died at any moment. That's when some leaves fell next to him. Even though the stakes were high, he swallowed it regardless due to his curiosity. He then felt more energised so he kept craving for them. He ate more and more until the poison had left his body. It was then that tea leaves were recognised as a medicine and made their debut.

Even though tea was not used as medicine among citizens, herbalists from the Han Dynasty (206 BC – 220 AD) continued to study and enhance the use of tea for medicine. As tea contains L-theanine (an amino acid), caffeine and theophylline (medication for asthma and chronic diseases), it is great for all kinds of ailments. Making it also popular among medical workers.

After the introduction of drinking tea, it took ancient China by storm. It was quickly normalised in high society. The nobility considered rare or expensive tea as proof of their status and wealth. Just having tea was seen as a luxury. The rich also drank tea for energization and peace of mind instead of using it for medical purposes. After years of development, drinking tea became habitual to everyone despite their classes. Commoners drank tea as pleasure rather than proving their rank. It then became proper etiquette to serve tea to guests or visitors upon their arrival as a gesture of respect, or even friendship and affection.

“茶” (pronounced as “tí”) — the old Chinese character for tea then became a household name. As it was used as medication, the character carried the definition of medicine. However, from the Jin Dynasty (265–420 CE) to the Tang Dynasty (618–906 CE), a stroke was removed from the character. It then became “茶” (pronounced as chá) after the simplification and is used to this day.

“The Classic of Tea: Origins & Rituals” (《茶經》) by Lu Yu (a native of JingLing) was a book about what tea was, what it contained, the tools for tea, the methods of brewing tea and its use. It is a renowned book and still considered the best monograph of tea ever written. Even though tea was already popularised by everyone, the book helped it reach new heights to the point where tea became an important part of Chinese history.

The fame of tea carried on to modern times. It spread even wider to foreign countries. In the United Kingdom, tea is consumed on a daily basis by a majority of people across the country. It is preserved as one of their cultural beverages as tea became such an impactful drink to the lives of many. In India, tea has had a great influence on households. They consume it in domestic and official surroundings, with sometimes an addition of milk. Furthermore, it is

regarded as an important part of Japanese food culture. Green tea is often served alongside dishes and tea ceremonies. It substitutes water and adds the finishing touch to a meal. Tea has an effect on all parts of the world, with billions of people drinking it daily, it is now a widely-known beverage.

Tea has a huge variety of kinds such as black tea, green tea, oolong tea, Earl Grey tea, chamomile tea, et cetera. And it all leads to the complicated production of tea. Firstly, tea leaves have to be harvested from *Camellia sinensis* after years of cultivation. Secondly, the harvested leaves have to be dried and processed. There are different flavours of tea because each is processed differently. Some are wilted, some are not. Some are oxidised while some are untouched. That is how different tastes and colours are made. Then people add different ingredients to it to make the flavour unique. Many add lemon and sugar to turn it into lemon tea. Milk is also commonly added to tea, making the drink thicker, hence the given name “milk tea”. It is experimented by many, there are countless possibilities on how one can go about tea, making it revolutionary with its diversity. It has the ability to evolve and keep its position as one of the best beverages ever served.

As tea contains a large sum of caffeine, it is used as an energiser. The caffeine in tea makes people forget about their drowsy, tired selves. It helps workers stay on their feet and finish their work. It helps students stay awake during long exhausting study sessions. Consuming tea early in the morning is the start of a fresh new day for a lot of people. The energetic feeling makes people productive and efficient. It does wonders. Therefore, it can be found in many cafés and offices.

To this day, serving tea to guests and visitors remains a common courtesy. It is not a proof of position anymore, but a way to initiate a conversation. That’s how the term “afternoon tea” was formed. Afternoon tea is a light meal enjoyed during the time between lunch and dinner, around 3–5 p.m. Hence the name ““afternoon” tea’. The meal is made of snacks such as sandwiches and sweet pastries and rich tea. High-quality tea is the main highlight of the meal, it completes everything with a hint of its bitterness. Long conversations take place during this peaceful and calming gathering. It helped grow tea’s reputation and its daily consumption.

Who would’ve thought that mixing hot water and leaves can create such a sumptuous drink? Shennong’s discovery led to a magnificent custom. Tea is enjoyed all over the world with people thirsting for more. Its luscious taste allured people into its cage. Tea has countless variations, with infinite forms and tastes. I believe tea will become the best beverage in the world, surpassing coffee and alcoholic drinks. It certainly has left me an unforgettable experience. The mesmerising scent is what makes me feel amazing in the morning. It has helped me through my long journey of school which has more to come. Tea has changed many souls and has become engraved in our fruitful lives. It will evolve and turn into something better than ever. The journey of tea has much more to come.

From Ancient Windmills to Modern Wind Power: The Evolution and Development of Wind Energy in China

Hong Kong Chinese Women's Club College, Chung, Pok Ho, Aiden – 12

Wind energy is an important part of China's renewable energy and an important area encouraged and supported by the Chinese government. In recent years, China has made significant progress in the wind energy field and has become one of the largest wind power markets in the world. This article will discuss the development status and prospects of wind energy in China from the aspects of the development history of wind energy in China, the advantages and applications of wind energy technology, the challenges and future development trends of wind energy technology.

1. The development history of wind energy in China

The Chinese government has introduced a series of policies to encourage and support the development of wind energy. For instance, a wind energy development plan has been formulated to provide financial subsidies and tax incentives for wind energy projects. In addition, a dedicated wind energy research and development institution has been established to promote the innovation and application of wind energy technology.

Driven by policy support and market demand, China's wind energy industry has developed rapidly. According to the data from the China Renewable Energy Society, as of end of 2020, China's wind power capacity has exceeded 300 million kilowatts, becoming the world's largest wind power market.

2. Advantages and applications of wind energy technology

Wind energy technology has the advantages of being clean, renewable, and efficient. In terms of application fields, wind power generation is currently in its most mature and large-scale application. In addition, wind energy can also be used in fields such as seawater desalination and heating.

In China, wind power generation has been widely used. Large-scale wind farms have been built in many provinces to provide the local with clean power supplies. In addition, with the advancement of technology and reduction of costs, the application scope of wind energy will be further expanded.

3. Challenges and future development trends of wind energy technology

Although wind energy technology has brought about many advantages, it still faces some challenges in many practical applications. For example, the intermittency and instability of wind power are important factors affecting the stability of the power system. In addition, the construction and operation of wind energy technology will also have certain impacts on the environment.

In the future, with technological advancement and policy support, wind energy will develop into a more efficient, stable, and environmentally friendly direction. On the one hand, technological innovation is used to improve wind energy conversion efficiency, reduce costs, and to improve market competitiveness, on the other hand, wind farm construction and operation management are strengthened to reduce the impact on the environment.

4. Conclusion

China's rapid development in the wind energy field is supported by Government policies and strong market demand. China's will continue to play an important role in the global energy market and the environment.

First of all, China is one of the world's largest wind power markets, and its development and application of wind energy technology plays a leading role in the development of the global renewable energy industry. China's wind energy technology continues to innovate, improving wind energy conversion efficiency and reducing costs, providing important experience and reference for the development of the global wind energy industry.

Secondly, China's wind energy development also plays an important role in promoting the transformation of the global energy structure. Traditional fossil energy combustion produces large amounts of greenhouse gas emissions, affecting global climate change. As a clean and renewable energy, wind energy is of great significance for reducing fossil energy consumption and reducing carbon emissions. China's wind energy development will promote the transformation of the global energy structure and promote the world's development towards a more sustainable energy system.

Finally, China's wind energy development will also promote the sustainable development of the global economy. As energy prices rise and environmental problems intensify, the development of renewable energy has become an important trend in global economic development. China's wind energy development will provide more clean energy supply to the world and promote sustainable economic development.

In short, China's wind energy development has an important impact on the global energy market and the environment. It will promote the transformation of the global energy structure and sustainable economic development, and contribute to the global response to climate change and the realization of sustainable development goals.

The Greatest Inventor in the Past – Huangdi

Hong Kong Chinese Women's Club College, Sze, Hing Lam – 14

In Hong Kong we use Western calendar, but do you know what calendar would the mainland use? Of course, it is the lunar calendar. Our Lunar New Year holiday is based on it. Do you know who invented the lunar calendar? The answer is the Yellow emperor. Do you know about his history and other inventions?

The Yellow Emperor was born in Shou Qiu, about 2704bc. Early on, he lived with his tribe near the Ji River. He then became a farmer.

One of his most important inventions is acupuncture. The Yellow emperor wrote a book called 'Neijing'. It is an ancient Chinese medical text or group of texts that has been treated as a fundamental doctrinal source for Chinese medicine for more than two thousand years. The book has proved influential as a reference work for practitioners of traditional Chinese medicine well into the modern era. The book takes the form of a discussion between Huangdi and his physician in which Huangdi inquires about the nature of health, disease, and treatment. The ideas in the book have a basis in Taoist philosophy. The key to a long healthy life is to follow the Tao, the natural way of the universe. Health and illness are caused by an imbalance of the two basic forces, yin and yang, and by the influence of the five elements (water, fire, metal, wood, and earth) on the organs of the body. The organs themselves were thought to interact in ways that seem physiologically strange nowadays: the spleen "ruled" over the lungs, for example, and the lungs were connected with the skin. There was an understanding of the connection between the heart and the pulse but not in terms of circulation of the blood as understood today. Like elderly said after eating crab, drinking a bowl of ginger red sugar soup would feel much better. This is because crab is a food belonging to yin and ginger red sugar soup belongs to yang. It sounds very different from western medical theory.

Diagnosis was mainly carried out by pulse taking, a complex process involving taking into account the time of day, season, and sex of the patient. Treatments included drugs, diet, acupuncture. There are four diagnosis methods: Inspection, Listening & Smelling, Inquiring and Palpation. If we take a look at westerns, they rely on evidence-based medicine to diagnose and treat symptoms and conditions. Western medicine uses scientifically proven methods to improve your overall health. Huangdi Neijing also stated that for everyone, the processes of the body follow certain natural rules and that health and disease are influenced by natural ageing processes, as well as the environment. All this needs to be understood to ensure accurate diagnosis and specific treatment for a condition.

Do you know how Huangdi Neijing affects our lives nowadays? One is acupuncture. It depends on Huangdi Neijing. Acupuncture involves inserting very thin needles into the body at different locations and depths. It aims to balance the life forces known as Qi that are responsible for different health issues. Other than using thin needles, doctors will also teach patients how to massage the acupuncture points by themselves to alleviate pain. Different acupuncture points have different functions, for example the place between your thumb and forefinger. If you feel a toothache, you can massage there and alleviate the pain.

With Huangdi Neijing, it emphasises the importance of following the natural route. There are four seasons in a year. We should eat in-season foods, not out-of-season food. Also, Huangdi Neijing also mentioned how to condition our body. For example, I was a very weak person when I was primary two, I always caught a cold. I went to the clinic and the doctor just gave me some medicine. After taking them, I didn't turn well. My mum decided to take me to see the Chinese doctor. She finished her checking with the four methods mentioned above. Then she told me the reason why I easily caught a cold is because my body is cold constitution. My hands and feet will always feel cold. That's very accurate! Then she gave me a list of different plants to boil to make a Chinese medicine. After two years, I feel much stronger.

In conclusion, Huangdi Neijing can help condition our body and is one of the greatest inventions of Huangdi.

A Glimpse of Chinese Inventions

Hong Kong Taoist Association Tang Hin Memorial Secondary School, Liu, Cheong – 13

Speaking of a country with a long and prestigious history, China, is undoubtedly on the list. As a nation that was established dating back to 200 BC, its significance is unmeasurable. From the perspective of inventions, let's dive into the innovative nature of Chinese.

Now, take a look at your house. If I'm going to tell you that almost all goods have a shadow of China's invention, would you be surprised? Before I explain, let's meet Ts'ai Lun. He served as a chamberlain in the Han Dynasty. At that time, paper was not invented yet. What our ancestors did was to carve the words on bamboo sticks, which the process was painstakingly hard, and no errors were allowed. Apart from the process of production, the finished product costs the earth. Few people could afford such precious items.

Ts'ai was later in the position of an inventor, having access to the most sophisticated technology and craftsmen in Han Dynasty. Then, he officially declared that the new generation of paper was invented. Using a wide range of common products, from old fishnets to wood peels, the mixture was boiled and dried and eventually, the first 'paper' was invented, which directly motivated the development of knowledge level due to the relatively low price of books. The commitment of Ts'ai Lun was crucial. It is no longer pride and noble's privilege to acquire knowledge. Civilians can also do so due to the reduction in cost for acquiring knowledge. Our ancestors' intelligence to life is unlimited. Adults having a few alcoholic drinks in a delightful day is the icing on the cake. This type of enjoyment would not be possible without ancient China who invented the uses of alcohol. Besides, alcohol is essential for modern medical treatments as it is commonly used for sterilizing during medical operations. Without it, it would be dangerous to carry out surgeries.

However, not only ancient Chinese are great inventors. Nowadays, China has developed a range of digital-orientated products, making great contributions to the electronics industry. For example, the biggest platform of video sharing – YouTube may seem to be invented by foreigner, but it turned out that it was a Chinese who founded the world-renowned platform. Not only is it used by people to pass time, but it also becomes a public access to information. This shows China has great potential in information industry.

All of these elements bring an alluring prospect. What will the Republic of China create in the future? What invention will China make to stir up the world? And what will it exactly be?

Well, it turns out we have the same potential to produce majestic things. Who knows? If so, let's strive together! Maybe you are the next Ts'ai Lun and Thomas Eddison!

Tales of China's inventions: Unleashing Innovation and Shaping the Future

Kiangsu–Chekiang College International Section, Tam, Colin – 11

Our flight was heading at full speed towards Hong Kong. I was reading a book about environmentally friendly technologies when I suddenly realised that the airplane I was on was polluting the earth. Because of this, I thought that if every plane in the world was eco-friendly, we could increase the chance of slowing the process of global warming. When I started to think of ways to improve an airplane, I wondered about putting solar panels on planes to use less fuel... maybe? I guess the key motivation behind all great inventions is to improve our lives. Great inventions can impact the world significantly. China is one of the most sophisticated civilisations in the world and has many ground-breaking inventions, from the ancient abacus and the compass, herbal medicines and health treatments including acupuncture, to more recent developments such as foldable smartphones and TikTok. China has consistently demonstrated its capacity for innovation and advancement. These inventions have not only had a significant impact within China but have also influenced global civilisation, transforming the way we communicate, travel, and live our lives.

The invention of the compass in ancient China stands as a remarkable achievement that revolutionised navigation and exploration. It is believed to have originated during the Han dynasty around the 2nd century BC. The Chinese compass, known as the "south-pointing spoon," initially consisted of a magnetised stone shaped like a spoon that pointed south. Later advancements replaced the spoon with a magnetised needle floating on water, enclosed in a protective case. This ingenious invention allowed sailors and travellers to determine their direction accurately, making long-distance voyages and land exploration more reliable and efficient. The compass played a crucial role in facilitating trade, military campaigns, and cultural exchange, contributing to the development of civilisations worldwide. The Chinese invention of the compass represents a significant milestone in human history, shaping the course of exploration and our understanding of the world.

The abacus, a calculating device that has been used for thousands of years, is a remarkable invention originating from ancient China. While the exact origins of the abacus are not well-documented, it is believed to have been developed during the Zhou dynasty around 500 BC. The abacus consists of a wooden frame with multiple rows of rods, each containing movable beads. By manipulating these beads, users could perform calculations quickly and efficiently. The invention of the abacus revolutionised mathematical computation, enabling individuals to solve complex problems without relying solely on mental arithmetic or written numerals. The abacus played a

crucial role in ancient China's education system and commercial activities, and its influence spread throughout East Asia and beyond. Even in the modern era of digital computers, the abacus continues to be used in some areas, serving as a valuable educational tool and a symbol of China's mathematical heritage.

TikTok, the popular social media platform, was created by a Chinese company . It was first launched in September 2016 under the name Douyin in China before expanding to international markets as TikTok in 2017. The invention of TikTok revolutionised the way people create and consume short-form videos. With its user-friendly interface and innovative features like filters, effects, and music synchronisation, TikTok quickly gained immense popularity, particularly among younger generations. Its algorithmic recommendation system, which tailors content based on user preferences, further contributed to its success. Today, TikTok continues to be a global sensation, influencing internet culture and spawning a new wave of content creators and trends.

I can't believe that my ancestors were intelligent enough to discover these amazing inventions! Maybe I can be as intelligent as them one day! Seeing global climate change getting out of hand, we need to work together to stop it. With my passion in aviation, I want to invent a plane that will be absolutely eco-friendly and efficient.

I might call it the Solar-powered Colin Craft (SPCC), who knows? Even though nowadays, solar panels have not nearly enough power to propel a plane through the sky, although with time, they may evolve to produce enough power. Maybe one day I'll be one of the first Chinese to receive the Nobel Prize for Amazing Scientific Discoveries (or NPFASD)! Maybe I'll even become world famous! The burning of fossil fuels, deforestation, and industrial processes have contributed to the accumulation of greenhouse gases in the atmosphere, trapping heat and leading to the warming of the planet. That is the reason I am fascinated by ancient Chinese inventions. These ingenious and timeless ideas contain the seed of continual inspiration and can shine a light for the challenging path ahead.

The Resurrection of Chinese opera

Kowloon True Light School, Chong, Man Ying – 14

Ladies tossing their silky water sleeves. Male actors somersault on the stage. At times they sing majestically, moments later they whisper softly, tinged with a mournful cry. Through it all they wear their emotions on their faces, literally as well as figuratively, telling an age-old tale that is the legend of Chinese opera itself.

This could well be a theatre performance in Beijing, set to sporadic applause at a day-time show; or a video-recorded display at the Heritage Museum in Hong Kong, designed to preserve the art form that had once had its prime.

But instead, this is a group rehearsal in Buffalo, New York, where Carrie Feyerabend was wowing the audience with her rendition of the Heavenly Maid Scatters Blossoms. Unbeknownst to her, she is also sowing the seeds of revival on alien soil of an age-old tradition that was once music to many ears.

Chinese opera, together with Greece tragic-comedy and Indian Sanskrit are the three oldest dramatic art forms in the world. Xiqu, as it's commonly known, traces its roots back to ancient China, evolving over thousands of years and maturing in the 13th Century during the Song dynasty.

Encompassing multiple art forms including music, dance, martial arts, acrobatic stage movements, costumes and make-up art, the national treasure also has great regional varieties, most notably Peking, Kunqu, and Cantonese, and has attained international recognition as a World Intangible Cultural Heritage.

In the world of Chinese opera, characters can be distinguished by their four basic roles: sang (male roles), dan (female roles), zing (rough or mighty male characters denoted by heavy face paintings) and cau (comic roles). In a sign perhaps that Chinese opera is ahead of its times culturally, there is great gender fluidity too in the art form where male actors are sometimes cast as dan and vice versa, with Mei Lanfang perfecting his trade as one of the most famous dan performers of all times.

Great cultural symbolism is also at play with the costumes and make-up of the actors. The audience can usually tell the characters' personalities apart by looking at their remarkable masks. Red for example represents loyalty, courage, bravery and righteousness; black symbolises forthrightness and honesty; white denotes villainary and wickedness, yellow depicts ferocity and ambition, while gold and silver are reserved for the supernatural, be they monsters, deities, or spirits, to name but a few.

This was what captured many a heart and mind among the Buffalo audience, with one viewer commenting the bright colours were so striking it brought the whole play to life, while another opined that the dresses, in their watery shapes, made for a feast for the eyes.

Heavenly as it may be, Chinese opera has suffered its own earthly fortunes in recent years with its support base rapidly ageing and dwindling, while the nation's young seem enraptured and detained by other pleasures of life, like the Korean pop culture.

While its journey back to the Earth may not have produced as much as a loud thud on the ground as its decline has been foretold for many generations, its reincarnation on foreign land in the last decade has perhaps stunned more pundits and observers alike.

In the United States, much of the revival has been led by Confucius Institutes, with their mission to spread the Chinese language and culture, giving millions a chance to experience first-hand the ancient civilisation.

In some quarters, the cultural artifact has been given a new lease of life, in the way of a mix of Chinese and western opera, that perhaps points a way to its second life in its Chinese homeland as well.

One-log Bridge, a creation of a Chengdu native Fan Pang who tells her own story of earning her Ph.D. in music at the University of Minnesota and later relocating to Pittsburgh, explore the notions of race, culture, immigration and home, in a fusion that blends Chinese and western music, costumes and even breakdancing in a cultural melting pot.

Traditional Chinese music, unmistakable by their sharp tones and loud sounds, are represented by Erhu and Pipa, two instruments perhaps most known to western audiences, while western classical traditions are showcased with their frequent overtures, choruses and ensembles in the play.

What drew the audience in Buffalo to the Chinese tradition though, was also the diverse and culturally-rich scripts and plays behind the opera. Few may understand what 'lok-faa mun-tin bai jyut-gwong' or 'raining petals overshadowing the moonlight' belted out by the female protagonist may mean at first, but upon closer investigation many are surprised by just how much cultural significance those mere seven words carry and the beauty and precision with which they were crafted.

In the immortal play of Floral Princess performed in the Cantonese genre, the tragic love story of Princess Ceong-ping and consort Zau Sai-hin is told in the backdrop of a calamitous fall of a nation, where she wept for how the two destinies are inextricably intertwined. With her city in flames, the Princess recognised she could not bear to live without her husband and committed suicide together in a sad but beautiful end of the tale.

The Cosmos Sword, a classic in the Peking style, tells a long story of how intrigue and feud between two rivals in the Qin dynasty spelt the death of an otherwise happy marriage of a young couple, again drawing its inspirations from the vast well of Chinese wisdom where family and kinship are inseparable from statehood. Both must flourish or perish together.

In the last century, Chinese opera has faced its existential crisis that might seem terminal at the time.

During the cultural revolution, Peking opera was banned as it was denounced as feudalistic and a bourgeois plaything. Many Peking opera artists were publicly shamed, forced into retirement or even killed. At that time, only eight revolutionary operas were allowed to perform, with performers singing to the tune of patriotic tropes.

In this century however, the challenge comes not as much from a bureaucratic plot to airbrush it out of history, but more from the great leap forward in technology that brings renewed threats but also opportunities.

Director Teng Junjie is one that found such an opportunity in the digital era and became the first that brought the Chinese opera to the big screen using 3D technology. In the adaption of the Peking classic Farewell my Concubine premiered in Shanghai in 2015, movie-goers felt not just the pull of the traditional art, but also knives flying off the screen towards them when the actors threw them, making them all the more engaged to the story as an active participant immersed in the experience.

All these have ensured new tales of China's century-old invention are being told afresh every day on Chinese stage, western rehearsal rooms, and who knows, maybe even streaming platforms like Netflix one day. For all that we know, one thing is for sure, Chinese opera, far from being a dying art, is alive and well.

Ceaselessly into the future: A Tale of Chinese space explorations

Kowloon True Light School, Fung, Arianna – 14

Putting the first man on the moon, sending astronauts to outer space, exploring the vast boundaries of the universe in unmanned spacecrafts, these may all be worthy achievements of the human kind in the past century. But what of this century and the next?

Chinese inventions hold much promise in writing the next chapter of human's relationship with the universe, for a Chinese company in December last year became the first in the world to launch satellites fuelled by methane and liquid oxygen, beating its American rival, and tech giant Elon Musk-owned SpaceX to the technology in a breakthrough that could transform the space exploration landscape beyond recognition.

The fact that LandSpace has managed to send three satellites aboard Zhuque 2 Y-3 in a successful lift-off that has seemed to plagued many of its American rival's attempts, not only raised hopes for its commercial applications according to the pundits, but importantly, it has rocket-boosted national pride and proved to the world this century is indeed Chinese.

Indeed, China has emerged as a major player in the field of space, making remarkable strides on the space stage in recent years and establishing itself firmly as a global leader. With its own brand of progressive missions, innovative technology and commitment to scientific advancement, China has successfully earned the world's attention and recognition.

Since launching its space mission in the 1950s from its humble beginnings and cash-strapped origins fresh out of the ashes of the civil war period, the Chinese have nevertheless dreamt big about what it can do to push the boundaries of human knowledge, application and ultimately existence. Chinese persistence and ingenuity plowed on when geopolitics intervened in the 1960s with the Sino-Soviet split resulting in the pulling out of foreign expertise and assistance.

Almost defying the laws of gravity in those political and economic circumstances, Chinese scientists have put missile and satellites as its cornerstone missions, decades of efforts finally culminated in the launch of Chinese first satellite Dong Fang Hong 1 in 1970, parachuting the nation onto its space power status by becoming the fifth country to ever put a satellite in the orbit.

It proved to be a moment of national pride and unity. Since then, China has made further strides in space technology. Notably of course, in 2003, Yang Liwei's successful flight into outer space put China on the map as the third country to independently send humans to space. That same year, China became the third country to achieve 'soft landing' on the moon when it landed Chang'e-3 on the moon surface.

The development of the BeiDou Navigation Satellite System, which provides global location and navigation services, and the discovery of quantum communication satellites with the launch of Micius, the world's first quantum-enabled satellite in 2016, also made it to the history books of satellite developments.

In 2018, China overtook the United States to perform more orbital launches than any other countries on the planet for the first time in recorded history.

But to simply record these numerical achievements would be to overlook the substantial contributions Chinese inventors and pioneers have made to the human race.

Listen to Dumitru Prunariu, the first and only Romanian astronaut, who said: 'The Chinese are among the most active members, showing interest in peaceful and sustainable cooperation of outer space, with a specific emphasis on the Moon and other celestial bodies.'

Bilateral space co-operations have existed for years, with China and Brazil a notable example of long-standing partnership in jointly developing their access to satellite imagery and remote sensing technologies.

With a focus on scientific research and development, China has also extended a hand of friendship and co-operation to the international community. In recent years, the high-profile Belt and Road Initiatives for instance has as one of its priorities the mission to improve satellite information pathways.

The Chang'e program, for example, which made waves internationally for achieving China's first soft landing, has seen the Chang'e 5 mission in which spacecrafts have rocketed back to the Earth with 3.8 pounds of lunar rocks and soil from its Oceanus Procellarum exploration site on the near side of the moon. These achievements have provided extremely helpful data and insights into lunar geology, space weather and future human exploration.

More recently, China has revived international interest and attention on Mars exploration with its Tianwen 1 mission when it successfully arrived in Mars's orbit and located a rover named Zhurong in May 2021. Named after the God of Fire in Chinese mythology, the rover explored Mars for 358 days and found irregular polygon-shaped wedges beneath its surface, thought to be caused by the freeze-thaw cycle of the planet.

But what does the future hold for Chinese space inventors, who will write the next tale of Chinese inventions?

Perhaps that methane-liquid oxygen rocket that blasted off the ground of Jinqian Satellite Launch Centre in Inner Mongolia will hold some clues. Deemed to be less polluting, safer, cheaper and more reusable as a propellant, the Chinese invention has pointed the way to future space exploration that can both slash costs and be environmentally sustainable.

Following that successful kick-off, LandSpace said it plans to operate three launches for clients in 2024 and double that number in 2025.

Other Chinese startups like OrienSpace and Galactic Energy have also launched or lined up satellites into orbit, making the private space industry an increasingly congested and competed arena since the Chinese government opened up private investment in the industry in 2014.

Apart from the growing evidence that China's future space inventions will be private-led, the public sector has continued its focus on spreading the benefits of space advancements for the masses.

Civilian use of Chinese space technology is evidenced by the Hongyan constellation programme, which consists of over 300 satellites aiming to provide global broadband coverage, benefiting remote areas and marine communication. Additionally, China has launched a few high-throughput satellites, such as the ChinaSat series, which is launched to meet the growing demand for high-speed internet, broadcasting and telecommunication services.

Indeed, China's pace on satellite programmes shows no sign of slowing. The country has enterprising plans for future missions, including the Chang'e 6 mission, in which spacecrafts will carry science payloads and satellites from four countries and will return more moon rocks to the Earth, is expected to be launched in 2024.

And so, at the forefront of space explorations, Chinese inventions will beat on, spaceships against the current, defying the ebbs and flows in the arena, borne back ceaselessly into the future.

A Tale of Rice: A Distinctly Chinese Invention

Kowloon True Light School, Ng, Man Hei – 14

The first rays of dawn crept over the majestic silhouette of the Great Wall of China, casting a warm glow upon its ancient stones. As the morning mist gently lifted, a secret whispered through the air, woven within the bricks that stood tall for centuries. The secret lay not in the grandeur of the Wall itself, but in the humble essence of rice, an unsuspecting hero that held this architectural wonder together.

Deep within the walls of the Great Wall of China lies an intriguing secret – the bricks that form this monumental structure are bound together by a unique adhesive known as sticky rice mortar. This remarkable discovery, made by master craftsmen around 500 CE, showcases the ingenious application of rice in the construction of one of the world's most iconic landmarks.

The story of sticky rice mortar begins with ancient craftsmen seeking to enhance the structural integrity of the Great Wall. They experimented with different materials and techniques to create a mortar that would withstand the test of time. Through trial and error, they stumbled upon an unexpected treasure – the power of sticky rice.

Sticky rice, also known as glutinous rice, has been a staple in Chinese cuisine for centuries. However, its adhesive properties were harnessed in a completely different context when mixed with slaked lime. The craftsmen discovered that blending sticky rice soup with lime created a potent inorganic–organic composite mortar that defied the limits of conventional construction.

The sticky rice mortar possessed several remarkable qualities that made it ideal for the demanding task of building the Great Wall. First and foremost, it exhibited exceptional strength and durability, surpassing the properties of traditional lime mortar. This allowed the bricks to adhere firmly together, creating a robust and resilient structure capable of withstanding the ravages of time and nature.

Additionally, the sticky rice mortar demonstrated excellent water resistance. This was a crucial factor considering the Great Wall's proximity to rivers and its exposure to rain and humidity. The mortar's ability to repel water prevented erosion and prolonged the lifespan of the wall, ensuring its endurance for centuries.

The discovery of sticky rice mortar not only contributed to the structural integrity of the Great Wall but also exemplified the deep connection between rice and the lives of the Chinese people. Rice, revered as a sacred staple, transcended its traditional role as food and became an essential building material, intertwining the realms of sustenance and construction.

In Chinese culture, rice weaves itself as an essential thread, embodying the sustenance, unity, and prosperity of the nation. The profound saying 'People regard food as their heaven' indicates the deep–rooted reverence for rice and its pivotal role in Chinese society.

Rice cultivation has been intertwined with the fabric of Chinese civilization for millennia. The fertile plains of China have nurtured vast rice fields, providing sustenance to the population and fueling the growth of communities. The surplus production of rice enabled the development of complex societies, where specialized skills, trade, and cultural exchanges flourished.

Beyond its role as a staple food, rice cultivation spurred advancements in agricultural techniques and irrigation systems. The cultivation of rice necessitated collective efforts, as farmers worked together to navigate the complexity of the land, ensuring abundant harvests and sustainable farming practices. This cooperative spirit fostered social cohesion and laid the foundation for the harmonious development of Chinese civilization.

Of course, rice chose China too. As a plant, rice requires plenty of water and heat and is uniquely suited to grow under wet and hot climates, under which other crops would not stand a chance to survive. With adequate rainfalls and suitable temperatures, the vast plains of southern China became a country of choice for rice to prosper and thrive. The more arid environment of the north however is not destined for rice, grains like wheat and millet are cultivated in rice's stead.

Reinventing nature, the Chinese people harnessed their wisdom and craft and brought vast quantities of rice northward to feed their fellow countrymen. The Grand Canal and other waterways were constructed to facilitate the transport of rice, with the rice trade turbocharging the manufacturing and commercial industries across the country too. Between 1000 and 1800 CE approximately, China became the world's most populous country with an economy that was the envy of the world, thanks in large part to the part rice farming played.

Rice can also make and unmake history. The absence of rice has often precipitated famine, rebellions and eventually the rise and fall of kingdoms. In feudal China, dynastic cycles often coincided with agricultural calendars and fortunes. The notorious Yellow Scarves Rebellion in the Eastern Han dynasty for example, had its seeds in the periodic flooding in the Yellow River which destroyed crops and harvests, leading to widespread hunger and uprisings. The peasants' revolts were also stirred up when the natural disasters and shortage of rice production were linked to a loss of the heavenly mandate of the emperor.

The deep symbolic meaning of rice can also be found in Chinese traditions and rituals, representing abundance, fertility, and good fortune. Throughout the various stages of life, rice accompanies important milestones, carrying cultural significance and conveying well-wishes.

During ancestral worship ceremonies, rice offerings are made as a way to honor and pay respect to ancestors. These offerings symbolize gratitude for their guidance and blessings, and serve as a way to strengthen the bond between the living and the departed. In weddings, the act of tossing rice has long been a cherished tradition. As the newlywed couple exits the ceremony, guests shower them with rice, symbolizing fertility, prosperity, and happiness in their future life together. This gesture expresses well-wishes for a fruitful and harmonious union.

Rice-based delicacies play a central role in Chinese festivals, further emphasizing the deep connection between rice and cultural celebrations. The Mid-Autumn Festival, for example, is marked by the sharing of mooncakes—sweet pastries with a rich filling, often made with rice flour. These round treats symbolize unity and the gathering of loved ones under the full moon. Similarly, the Dragon Boat Festival is associated with the consumption of zongzi, pyramid-shaped rice dumplings wrapped in bamboo leaves. These delicious treats are filled with various ingredients and steamed or boiled. They are traditionally eaten during the festival to commemorate the ancient poet Qu Yuan and ensure protection against evil spirits.

In the grand tapestry of Chinese inventions, the story of rice stands out as a testament to human ingenuity and the symbiotic relationship between culture and innovation. The application of sticky rice mortar in the construction of the Great Wall of China exemplifies the resourcefulness and adaptability of ancient Chinese builders. Meanwhile, the cultural significance of rice as a symbol of sustenance, unity, and prosperity reinforces its fundamental role in Chinese society.

As we gaze upon the Great Wall, let us remember the humble rice grains that hold its bricks together, reminding us that even the smallest of elements can wield great power. The new tale of Chinese inventions, interwoven with the essence of rice, invites us to appreciate the wonders that arise from the fusion of tradition, creativity, and the everyday miracles that surround us.

From Boyhood to Enlightenment: A Monk's Path of discovering China's Greatest Invention

Kowloon True Light School, Tang, Hiu Yan – 14

In a small village nestled among the lush mountains of ancient China, named Qilin, lived a curious and compassionate young boy named Zhang Wei. From a tender age, Wei possessed a deep sense of wonder and a yearning to understand the mysteries of life. His heart was filled with a desire to bring peace and happiness to all beings.

One day, while exploring the nearby forest, Wei stumbled upon an old and weathered scroll hidden beneath the roots of a sacred tree. Intrigued, he carefully unrolled it and discovered that it was a part of the Heart Sutra, a sacred Buddhist scripture.

As Wei read the profound teachings of the Heart Sutra, a awe-inspiring sense of clarity and peace washed over him. He realized that he had found a treasure that held the key to unlocking the path towards enlightenment. Determined to understand its wisdom and share it with others, Wei embarked on a transformative journey finding the rest of the Heart Sutra.

Wei sought out the counsel of wise monks and dedicated himself to the study of Buddhism. He immersed himself in the learnings of compassion, wisdom, and mindfulness. With each passing day, Wei's understanding deepened, and his heart blossomed with love and compassion.

Wei's journey to wisdom was of course not without difficulties, the well-trodden path was laid with countless failures before him, but Wei's persistence and grit helped him weather many storms.

One evening, he was alone in the temple reading the Heart Sutra and deciphering its deep meanings late into the night, when a gust of wind swept through the deserted hall and extinguished the candles on his desk. Sensing the approach of something dark, Wei held forth to his beliefs and recited the Heart Sutra in his heart.

Despite hearing the echoes of his family back home and other voices in his head, Wei never yielded to the temptations, believing that those were but hallucinations designed to make him deviate from the path he was on. And so many a night passed, and he grew stronger by the day, fortifying his mind with the teachings of Heart Sutra and emptying his earthly desires in substitution for spiritual ones.

Believing he was ready for the tasks ahead, Wei proceeded to Xizang, which was believed to be the location where the remaining portions of the Heart Sutra were kept. Despite the difficult journey of trekking across half of China and passing through mountains and deserts, Wei never gave up on his aim of becoming an enlightened monk like XuanZang.

Also, under the tutelage of the wise Master Xuan, Wei's teacher, he delved deeper into the intricacies of the Heart Sutra. Master Xuan recognized Wei's extraordinary potential and nurtured his innate qualities of wisdom and compassion. He taught Wei the importance of practicing meditation and cultivating a mind free from attachment and delusion.

Wei arrived at Xizang with the help of the abilities Master Xuan had taught him. There, he discovered the remainder of Heart Sutra. In addition, he visited the hallowed Potala Place, where he was able to view the palace's renowned collection, which included the pagoda housing the Dalai Lama's bones.

As years passed, Wei's reputation as a devoted and insightful practitioner spread far and wide. People from distant lands would come to seek his guidance and wisdom. Wei became known as Dalai Lama, a revered figure in the Buddhist community, at last realizing his long-held dream of becoming an influential master like XuanZang.

It was then when he realized life was not about seeking, but about giving; not about chasing some glory and titles, but about spreading joy and happiness; and that China's greatest invention in his mind was not the Heart Sutra or even Buddhism, but what lies in the human heart, the ability to perceive, to cherish and to love.

Wei spent his days spreading the teachings of the Heart Sutra, inspiring others to cultivate inner peace and compassion. He taught his followers the importance of seeing through the illusions of the material world and embracing the interconnectedness of all beings.

After years of hard work preaching across China, Wei has finally decided to return to his hometown — Qilin. Under Wei's guidance, the village flourished. The people learned to live in harmony, treating one another with kindness and respect. They cultivated gratitude for the present moment and found solace in the practice of meditation.

Wei's teachings transcended boundaries, reaching the hearts of people far and wide. Kings and emperors sought his counsel, and his influence spread throughout the kingdom. His message of love and compassion resonated deeply with all who encountered it.

In his later years, Wei dedicated himself to writing commentaries on the Heart Sutra, intending to make its profound teachings accessible to all. His writings became renowned throughout the Buddhist world, serving as a source of inspiration for generations to come.

Wei's impact extended beyond his teachings. He established monastic centers and schools, where young disciples could immerse themselves in the study of Buddhism. He emphasized the importance of integrating the teachings into daily life, encouraging his students to embody compassion and mindfulness in every action.

Through his teachings and writings, Master Wei touched the lives of countless individuals. He transformed the way people perceived themselves and the world around them. His presence was like a calming breeze, soothing the hearts of those burdened by suffering and guiding them towards liberation.

When Wei's time on Earth came to an end, his teachings continued to ripple through the hearts and minds of countless individuals. His legacy lived on in the hearts of his disciples, who carried forth the torch of his wisdom and compassion.

Centuries later, the story of the boy who found the Heart Sutra and became a master of Buddhism remained a cherished tale. It served as a reminder that wisdom can be found in the most unexpected places, and that a single individual, driven by genuine compassion, can transform the lives of many and leave an indelible mark on the world.

The world continued to be blessed by the teachings of Master Wei, an eternal testament to the power of the Heart Sutra and the transformative potential within each and every one of us. And so, the journey towards enlightenment and the pursuit of inner peace and compassion continued for all who sought the path.

The Brilliant Inventor and the Light of Civilization – Zhuge Liang

Macau Pui Ching Middle School, Liu, Kai Yan Eric – 18

When it comes to famous figures in ancient China, Zhuge Liang, who lived in the Three Kingdoms period, has left an indelible mark on Chinese history. Because of his brilliant talents in the military and politics, he is renowned at home and abroad and has already been an enduring legend. It is in the work *Romance of the Three Kingdoms* that he distinguished himself, and people know him well because of it. However, in addition to being a sophisticated politician and military strategist, he also has another status that is rarely known by people – he is also a daring and outstanding inventor in Chinese history.

Steamed buns

Zhuce Liang invented steamed buns when he led his army across the Lu River south. While they were preparing to cross the river, suddenly a gust of wind blew up and the sky was soon covered with dark clouds. According to the words from an old man who had lived in the local area for a long time, Zhuge Liang learned that these strange phenomena were because the souls of the soldiers who died on the battlefield could not rest in peace, and forty-nine heads needed to be sacrificed. Instead of killing innocent people, Zhuge Liang made a brilliant decision by ordering his soldiers to slaughter cattle and sheep, chop them into meat fillings, wrap them in flour, and make them into round shapes that looked like skulls. Zhuge Liang named them “Steamed Buns” because in ancient times, southern barbarians called Man Tribe were often killed to be offered to God as sacrifices, and the Chinese pronunciation of steamed buns is similar to “Man”. Now steamed buns have become one of the indispensable staple foods on the Chinese table.

Sky lantern

Kongming lanterns, also known as sky lanterns, have been used as lanterns to make vows to God in Chinese traditional festivals. It is a lantern made of paper with a candle or torch inside that can be lit and taken off into the air. The origin of the creation of Kongming lanterns can be traced back to the Three Kingdoms period when Zhuge Liang, also known as Kongming, the prime minister of the Shu Kingdom, resisted the attack of the enemy the Cao Wei Kingdom. During the war, the Shu army was in great trouble and very close to losing. In order to boost the morale of the soldiers, Zhuge Liang asked the soldiers to make a batch of special lanterns. The lanterns were made of paper with torches inside. Then, at night, Zhuge Liang ordered all the soldiers to light lanterns together and then release them into the sky together.

When these lanterns rose into the sky, they created a beautiful light and magnificent scene in the night sky which inspired the soldiers greatly. They believed that these lanterns would convey their wishes to God, bringing good luck and victory. In the end, the Shu army successfully defeated the enemy’s attack. What a remarkable invention Zhuge Liang made! Since then, the Kongming Lantern has become a symbol of good luck, good wishes and victory, and people have begun to fly the Kongming Lantern in some special festivals and celebrations.

Three great inventions in the military

In the military, Zhuge Liang is best known for his three major inventions: the Eight Formations, the Wooden Ox and the Flowing Horse, and the Zhuge repeating crossbows. So how powerful are these three great inventions?

Let’s talk about the Eight Formation Diagram first. This is a formation method improved by Zhuge Liang. It is a battle formation and troop deployment diagram in ancient wars. Because of the invention of the Eight Formation Diagram, the wars directed by Zhuge Liang never failed. Zhuge Liang’s Eight Formation Diagram also played an

essential role in the later generations. For instance, during the Western Jin Dynasty, the famous general Ma Long made a sidecar based on Zhuge Liang's Eight Formation Diagram. In the end, he defeated tens of thousands of the Xianbei army with only 3,500 people. It is said that the famous Tang Dynasty general Li Jing also created the "Liuhua Formation" based on Zhuge's Formation. Until the Northern Song Dynasty, many generals were still studying Zhuge Liang's Eight Formations.

Next comes Zhuge Liang's invention of the wooden cow and the horse. It is a transport cart improved by Zhuge Liang. Before his invention, an ordinary transport cart during the Han Dynasty could carry 10,000 kilograms of grain with six people to push it. During Zhuge Liang's Northern Expedition, when transporting grain through the plank road, it was impossible for six people to push the cart together because the plank road was too narrow and easy to collapse. Therefore, Zhuge Liang improved the transport cart by reducing its size. Although its carrying capacity was only 2,000 kilograms, only one person was needed when moving it, making it more convenient and safer to transport grain. Zhuge Liang's improvement reflects his philosophy of not pursuing the biggest, but the most suitable.

Last but not least, let's talk about the Zhuge repeating crossbows. Compared with ordinary crossbows, the Zhuge repeating crossbows can shoot ten arrows at a time, whose force was much like a gun in ancient society. The Zhuge repeating crossbows had always been popular in ancient China. In the Ming Dynasty, some people imitated Zhuge Liang's design and developed the Zhuge Wuhou Crossbow. The Zhuge repeating crossbows are also very famous abroad even nowadays. For example, the Chinese army in the game "Age of Empires 3" uses the Zhuge repeating crossbows as weapons.

Zhuce Liang's inventions are far more than the above five, as well as the improvement of fire wells, tube-sleeved armor, Dongshui fields and other astonishing inventions. The famous Chinese writer Lu Xun once commented on the character Zhuge Liang in the novel *The Romance of the Three Kingdoms*: "His intelligence is too extraordinary as a human, almost like a supernatural being." This remark reflects that the image of Zhuge Liang in historical novels is unreal and divorced from reality, but the real Zhuge Liang in history, as a military strategist, politician, and most importantly, outstanding inventor, is rooted in human beings. In real history, he was not a supernatural being who lived high above. Instead, he was greatly concerned about the desirable needs of the common people and his soldiers, making every effort to achieve them. It is this kind of Zhuge Liang that can be passed down through the ages. The extraordinary wisdom he showed in his inventions has been shining from ancient times to the present and will last forever.

Chinese Inventions' Impact on Human's Daily Lives

Macau Pui Ching Middle School, Lau, Hao Ieng Madison – 14

Over the past years, the Chinese have created numerous inventions that have significantly changed humanity. As a Chinese, born and bred, I've heard about The Four Great Inventions ever since I was a toddler. They are well-known around the globe and include papermaking, gunpowder, printing, and the compass. From these four ancient inventions to today's digital society, China's clever inventions have shaped our daily lives. Not only did Ancient China create astonishing inventions such as the crossbow and silk, but until modern times, this country is still developing at an insane speed and rushing towards big hopes for the whole world.

Many may not know this, but the Chinese invented an everyday item. Long ago, people used chewing sticks to keep their teeth clean. These were branches or sticks from certain plants that were chewed until frayed. That was until the toothbrush, a necessary item for proper hygiene, was invented about 800 years ago in China. The first toothbrush was made with bamboo and stiff hog bristles. Some variants used animal bones instead of bamboo sticks. The bristles on the brushes were sourced from hogs living in northern China because the cold temperature provided firmer bristles. The toothbrush first spread to Europe through travellers before swiftly reaching the rest of the world.

Nowadays, everybody needs cash to survive. Can you imagine only using heavy coins as your currency? Believe it or not, people used metal coins for a long time until paper money was finally introduced in China in the Song dynasty during the 11th century. However, the concept appeared in the Tang dynasty back in the 7th century. Merchants, tired of cumbersome copper coinage, sought a more convenient substitute. They came up with the idea of credit notes, but these only lasted for a limited period and had less value than the promised amount. However, these notes did not replace the use of coins. In the 11th century, however, the government ran short on copper for coin striking, eventually issuing the first series of paper money based on credit notes. They soon observed the economic advantage of this and started massively printing these incredible papers. In the 13th century, these became well-known in European countries. "All these pieces of paper are issued with as much solemnity and authority as if they were pure gold or silver..." commented Marco Polo, a European traveller when he first discovered paper money. Until the present, paper money has still been widely printed and used worldwide.

China's development did not just stop there, either. In modern times, the use of virtual payment systems is prevalent. In China, Alipay and WeChat Pay are used by a large number of citizens. Taobao, a prominent online shopping platform, has pioneered this development. Over the years, this platform has gathered 1.3 billion users. An astounding number, right? Additionally, China has made huge advancements regarding drones. DJI, founded in 2006, is a Chinese technology company that has established itself as a global leader in the drone industry. DJI accounted for around 76% of the world's consumer drone market as of March 2021. These technologies are something many of our people are proud of. Not only that, but this technology is slowly but surely affecting our daily lives. Every day, numerous people use WeChat and Alipay to even buy the most basic but necessary items or supplies. If they ever shut down, these users will no longer be able to use their mobile phones to purchase items. They would have to use cash, a more inconvenient choice. DJI's drone camera technology is used widely around the globe for music, movies, and many other filming projects. It has also been used in police and military forces. Imagine a music video with amazing graphics and scenes. Without the technology DJI created, the quality will never be as lively as it is today. Instead, we would be watching less amusing music videos. The police and military would not find their targets as quickly as they do now.

We already have such sophisticated and stunning technologies, but it definitely does not end here. Every month, day and even minute, China takes steps on the road to help its own people and the entire globe. Beyond the points mentioned, an increasing array of technologies continues to grow and develop. One of the most well-known is Artificial intelligence facial detection. Without a doubt, China has been improving its economic and social landscapes through these technologies. It is up to us to imagine what awaits us in the future, but it is almost certain that China will not disappoint us.

New Tales of China's Trends of Inventions

Po Leung Kuk No. 1 W. H. Cheung College, Lam, Sheung Chit – 14

From the past to the present, China's inventions have been known far and wide. In the past, explosive gunpowder allowed people to celebrate festivities with booming excitement, while materials such as paper led to the easy distribution of written knowledge. Nowadays, supersonic bullet trains and energy-efficient solar panels have given China an edge in the technological sector.

In this essay, I will talk about the spirit that drove Chinese inventors to come up with innovative ideas and speculate on what incredible invention might appear in the future.

Firstly, the reason that ancient Chinese people have been so successful in their endeavours is because of their diligence and persistence. It is said that paper-making was invented by a man named Cai Lun in the Han dynasty. Noticing how other writing media were inconvenient and fragile, he painstakingly tested numerous different materials to come up with a perfect recipe for paper. Since the process included long periods of soaking and drying, it would take immense manpower and time to test just one batch of paper. Despite this, Cai Lun persevered and experimented hundreds of times before he finally succeeded. The resulting mixture consisted of mulberry and several common fibres in China. It was easy to do calligraphy on it, and it slowly made its way into different cultures around the world.

As far as modern inventions are concerned, TikTok is a perfect example to illustrate how Chinese inventors can be adaptive and catch up to the latest trends. Tiktok, being a website jam-packed with short-form content, suits the needs of the young generation perfectly. Its compact interface and built-in features allow users to express themselves freely, and easily. In addition, advanced AI sorting algorithms show people the content they are most interested in, which is why people sometimes find themselves browsing the app for hours at a time. All those functions were meticulously created by Chinese programmers, which goes to show how China is always ahead of the curve.

Combining hard work and creativity, Chinese inventions have impacted the world time and time again. With endless upcoming possibilities, it's only natural that China uses these traits to its advantage. In my opinion, that can only mean one thing – space cities!

Scientists around the world have been interested in space since the Egyptians first saw the Moon. At present, China is one of the countries with a dominant lead in the astronomical field. Having witnessed China's rapid development, I believe that entire space cities are possible in the coming century or two. As sea levels rise and extreme weather events such as hurricanes become more frequent, it's only natural that we would like to expand outwards to avoid our demise. On the other hand, space cities have stable conditions and can be regulated more easily than cities on Earth, which is why building one is of everyone's interest.

The cities would orbit around the Earth like the Moon. It would look like a huge ring that spins on its own to create a centrifugal force. In other words, artificial gravity would be created to mimic the conditions on Earth. Perhaps solar panels could be the city's main energy source, while plants and animals could be grown in greenhouses via sustainable methods. Moreover, telescopes would be a common household item because people no longer have to worry about light pollution, hence they could view planets and stars far beyond the cosmos. As a result, people would become more interested in space.

Thousands of satellites could monitor spatial conditions and warn the citizens of potential disasters. They could also link up with the satellites orbiting Earth, providing some comfort for those who are homesick. Events such as meteor showers and comets have always intrigued space enthusiasts, so witnessing them freely in a space city would be a dream come true.

People can access space more easily if they're already in space. Leisure activities would include spacewalks and space sports. Could you imagine playing basketball in zero gravity? How would it feel like to dance if you were weightless? The possibilities truly seem endless, don't they?

In its early development stage, space cities might require regular imports on Earth. After all, most cities cannot produce all the resources they need by themselves. However, as the city grows in size and increases in efficiency, it could provide a sustainable living environment. After that, we could set our sights on travelling to other planets in our solar system, and eventually travel to different galaxies!

While it may sound far-fetched, many scientists have proven that interstellar travel is possible given enough time and effort. Now, you may ask: How is China a suitable contender for building space cities?

It all comes down to perseverance and innovation. While the conditions in space are vastly different from those on Earth, I believe that space cities could be built from the ground up in a matter of decades. The incredible efficiency and diligence of Chinese people would give them an advantage in completing the city, while their resilience would allow them to bounce back after every hardship.

China's creativity and novel ideas are also paramount to the future of this space city. Scientists have always been keen on doing experiments in space. Usually, these experiments yield surprising and fruitful results. Now, with an entire colony in space, combined with their innate ingenuity, China could be light years ahead in scientific development, so long as they establish this space city.

Another reason why space cities are such a perfect match with China is because Chinese people have always been inspired by the moons and the stars. Ancient poems and texts dating back thousands of years regard the moon as a vessel for the authors' joys and sorrows, while household tales about the moon goddess Chang'e are known by every Chinese child as soon as they learn how to walk.

Given China's distinct cultural customs and the people's commitment, I'm sure that space cities could be an invention exclusively developed by China. Don't you agree?

When people get exposed to new ideas and different cultures, innovation soon follows. The past and present experiences of Chinese inventors taught me lessons about diligence and creativity, while also inspiring me to come up with inventions of my own. Is it possible that China will build space cities in the future, or is such an idea too outrageous? However, one thing is certain – as long as we think and act, our imaginations could be transformed into reality.

New Tales of China's Trends of Inventions

Po Leung Kuk No. 1 W. H. Cheung College, Chung, Sze Ting – 14

Nowadays, all the things we use in our daily lives are invented by the people in the past. Most of us are familiar with inventors like Thomas Edison and Albert Einstein because their inventions and discoveries have influenced us very much. But what about Chinese inventors? We might know Cai Lun who invented the paper and Zhang Heng who created the seismoscope. However, we know foreign inventors more but fewer Chinese inventors. Therefore, I am going to introduce two Chinese inventors in both the ancient and modern.

To begin with, Sun Yunqiu was an inventor in the Ming dynasty. He was born in 1628. Even though he died at only 34 years old, he had plenty of achievements in creating eyeglasses and mirrors. He wrote a book about mirror history and some records of optical instruments. Sun Yunqiu's mother was knowledgeable so he was inspired to learn and explore mathematics in the categories of mensuration, calculation and geometry. However, Sun Yunqiu was forced to stop learning since his dad died when Sun was about 13 years old. Later, he continued to learn and thus he was successful.

Sun Yunqiu invented different lenses for eyeglasses to correct short-sightedness or other eye problems. People might be short-sighted or long-sighted. They might have astigmatism or presbyopia. These are the common eye problems in Ming. Sun learned everywhere to find teachers in Hangzhou and finally, he could grind lenses to make various types of lenses in order to correct eye problems and to help people. Eyeglasses were rare in the Ming dynasty and they were expensive. His creation of many kinds of lenses affected the industry of eyeglasses greatly in Suzhou and later in China. The glasses became cheaper and more and more people could afford to buy them.

Besides eyeglasses, Sun Yunqiu invented a wide range of mirrors. For instance, there are simple telescopes, magnifiers, microscopes, etc. Different mirrors have different uses. People could observe different images when looking at the mirrors. People could see images far away by using telescopes, small images by using magnifiers, and much smaller images by using microscopes. They were intriguing. Sun wrote a book recording the history of mirrors and lenses including his inventions. Although the mirrors didn't have a great influence at that time, people read the book and created the mirrors according to it and therefore the mirrors exist now and we can use them.

In my opinion, Sun Yunqiu wasn't known by many people but he gained a victory. First of all, the skills to grind lenses were developed by him in China. His teacher learned the study of light from the Western people and taught the Sun about it. After talking with other investigators, Sun mastered the skills to grind lenses. He put a substantial effort into improving eyeglasses. I appreciate that he was willing to research for it instead of doing simple jobs such as being a teacher in school and working for the government. The development of eyeglasses in China was important too. Because of his accomplishment, eyeglasses became more common so we can buy a pair of glasses at a reasonable price now. In addition, there were only monacles at that time and Sun made bicle which is most of the eyeglasses we see today. A pair of glasses is more convenient and safer. It is also more suitable for Asians as we can't hold a piece of glass easily. His inventions of lenses and bicycles made us buy a pair of eyeglasses to let us hold the glasses with less difficulty and see things.

On the other hand, Sun talked with other researchers and learned from teachers, which showed that he was humble. He was eager to learn so he looked for teachers. If he studied by himself without consulting anyone, he wouldn't have had such great achievements. He would not be known by us now too. Discussing with researchers, Sun acquired knowledge and was inspired by them. They studied light together so Sun benefited from their

discussion. I think this was because the power of a group of people is much larger than the power of an individual. “Unity is strength.” When there is teamwork or collaboration, anything can be achieved. Furthermore, Sun stopped learning at 13 because of his dad’s death but he learned again later. He needed to take care of his mum and himself so he worked and sold things to make money to live in that period. He persisted in learning and wasn’t affected by the incident. Therefore, I think he was a remarkable person.

Not only did Sun Yunqiu invent lenses and glasses which help us nowadays, but also his good qualities which we can learn from him. For example, he was modest and we can also learn from his perseverance. Having similar qualities, another inventor I want to introduce made a great success too. She is a modern inventor called Tu Youyou.

She was born in 1930. She is a malariologist and pharmaceutical chemist. She has invented medicines to cure diseases. Studying Chinese and Western medicine, Tu Youyou found artemisinin and dihydroartemisinin, which are used to treat malaria. In the 20th century, malaria was widespread in more than 100 countries in tropical and subtropical zones. 150 million to 300 million people died in the 20th century alone. Her medicine can decrease the patients’ mortality rates of malaria, saving millions of lives in South China, Southeast Asia, Africa, etc. Moreover, she got several prizes for the achievement. She got the Nobel Prize in Physiology or Medicine jointly with two other people in 2015. She is the first female in China to receive a Nobel Prize in any category. Apart from this, she also got the Lasker–DeBakey Clinical Medical Research Award and the Warren Alpert Foundation Prize.

Tu discovered a chemical compound which can heal malaria. This saved many people at that time. Her discovery was not a piece of cake. When she was studying in secondary, she suffered from tuberculosis, forced to stop her academic. After two years, she was getting better so she started to go to school again. She studied at Peking University and graduated in 1955. She worked from that time including the period of the Vietnam War. Before discovering ways to treat malaria, Tu studied a way of using herbs to treat schistosomiasis. It is related to Chinese Medicine. It was like a preparation for finding artemisinin. Since malaria killed many people in China, Tu was invited to join the research group to find a drug to cure malaria.

The major contribution of Tu is artemisinin. Her mission was to carry the team to find out anti-malaria drugs. By 1969, scientists from all over the world had tested for 240000 compounds but nobody succeeded. At the age of 39, Tu thought she could test Chinese herbs because they would not appear in foreign countries. She collected over 2000 herbs and summed up 640 prescriptions. She wrote all the details in *A Collection of Single Practical Prescriptions for Anti-Malaria*. Experiencing 380 failures and improving extraction methods, Tu finally accomplished the mission. She then developed the medicine and it was used for treating malaria in 1972. The exploration rescued over a million patients of malaria, influencing the world deeply.

She got recognition from the World Health Organization for the anti-malaria drug. The Nobel Prize was also given to Tu in 2015. Not only did her dedication save lots of people infected by malaria, but also gave a huge development in Chinese medicine. As she has been a researcher and scientist in China, she made a great impact on medical studies. She was a teacher too and she brought up a few master’s graduates and one doctor’s graduate. Furthermore, she wrote theses about medicines which favor future generations and push evolution. Scientists can read them so as to know the research of artemisinin and may get some other ideas for other investigations. Bai Chunli, the President of the Chinese Academy of Sciences said Tu Youyou’s award is the pride of the Chinese scientific sector. This shows that Tu had significant success and influence on society.

Although her achievements were not recognized by China as her contribution, she didn’t care much about it. She continued to do research and teach students at school. This shows that she didn’t care about fame and fortune. Being selfless, Tu still helped to develop medicine for China in 2019. She wrote many articles about artemisinin—her major

achievement. This allows future generations to read them and know more about science, mainly medicine. In my point of view, she is keen on learning and exploring nature science too. She has been learning and researching almost her whole life. She persevered with it. She was 93 years old this year and she helped the future generation in developing the research on artemisinin. She was still energetic enough to do that, which made me respect and admire her. I hope I will be so healthy and love learning like her at a later time.

In conclusion, Sun Yunqiu and Tu Youyou both have different qualities that we can learn from. From humility to perseverance, we can adopt them not only in learning but also in working and developing hobbies. If we have these qualities, we may achieve our goals in a particular aspect or even life goals. Additionally, their inventions which helped all people around the world, made me feel impressed. They gained glory for their country. Thus, people may have a good impression of Ch

A Better Air Conditioner?

Po Leung Kuk No. 1 W. H. Cheung College, Lau, Lok Tung – 13

“Shanghai has experienced a great disaster; coastal water levels have begun to rise. It is now speculated that the flood may soon submerge the entire town. Citizens are asked to be mentally prepared and flee as soon as possible.”

The news reporter on the TV brought bad news, and every citizen is trying to leave as soon as possible. Although it is only a false alarm, since then the temperatures in China have started to rise sharply, and soon this phenomenon could extend to the world.

Global warming is getting more serious. Surely, global warming is a problem that cannot be ignored. Climate impacts are already harming health, through air pollution, disease, extreme weather events, forced displacement, pressures on mental health, and increased hunger and poor nutrition in places where people cannot grow or find sufficient food. People usually use air conditioners to keep themselves warm. However, the problem will become more serious if people continue to use air conditioners because this will cause more emissions of greenhouse gases. This condition first started in areas such as Chongqing, and Wuhan – the hotter areas. Then this started to spread to other areas. Even some traditionally cool areas started to experience this condition. Soon after, this is happening all over the world.

So people use air conditioners even more often, which causes the problem to become even more serious. What is more troublesome is that as the economy develops, market prices increase. This is undoubtedly a heavy blow to those low-income people's lives. All of the most famous institutions and organizations in the world started paying attention to this issue. They hired famous inventors and scientists to solve this problem but they did not get good ideas: planting more plants, and decreasing the use of electronic products which may cause harm to the earth. Some of them even started to plan to move to Mars. However, they know that is ultimately impossible; through the advancement of time, scientific knowledge and technology have developed well, but it is still not enough to make this idea come true.

“ We must find a good idea to solve this problem! Those citizens are starting to hold demonstrations! They said if we don't do something, they will give us a piece of their mind! ” Appeasing citizens is not an easy task for big countries, so how could ordinary countries cope with it?

“ I pay money for those so-called successful researchers. For them to be failures?” The presidents are helpless. They did whatever they could but all of those efforts are useless in the face of this problem.

Different countries want to stand out among others and propose solutions. China is no exception. In fact, in the past, China's scientific level was not as good as other countries. However, with their unrelenting efforts, they developed successfully. As we all know, China's temperature is not unified. Some districts are always hot but some are always cool. That makes China's different districts' cultures have big differences. There is a disadvantage in joining the scientific community later.

However, those scientists finally found a solution: a machine which freed gases that could offset the gases emitted by the air conditioners. This invention still has a lot of flaws but can do enough to mitigate the problem.

This invention soon becomes known globally. Every country rushes to buy it.

This machine can exhaust nitrogen, oxygen, argon, carbon dioxide etc. gases which are the main components of the atmosphere. Plants can also do these but their efficiency is too slow. The machine can exhaust higher purity gases and its efficiency is even faster than plants. The most important thing is, it can be made by humans and does not take a long time so it is much more convenient than planting plants.

With this machine, the problem may be solved, but the machine still has a flaw – while it is operating, it will emit 20% of greenhouse gases from the total. Greenhouse gases have a bigger impact than those other gases. Although the problem might be solved in several years, people still need to endure the heat.

As more and more machines are produced, with the greenhouse effect problem eventually being addressed, the temperature problem is still not fixed completely. However, there is hope as the ratio between the impacts of these gases and greenhouse gases is getting closer and closer.

New Tales of China's Inventions

Po Leung Kuk No. 1 W. H. Cheung College, Tong, Hoi Pok – 13

China has a lot of inventions that you may be familiar with, such as the ones in ancient times, with printing, gunpowder, the compass and papermaking being the four most popular, with it still being used today. Even though people of later generations associate the best inventions with ancient times, China still has a lot of world-changing inventions now, such as the quantum experiment satellite, synthesized crystalline bovine insulin, USB drive, VCD player, portable charger, AI glasses to help blindness, new merchandising way with blockchain technology, 3D printing building technology, advanced advertising materials and internet car. In this passage, some of their ideas, usage, details, and how they change our daily lives will be briefed below.

Firstly, the quantum experiment satellite, named “Micius” (named after a Chinese philosopher and scientist who is credited as being the first person in history to conduct optical experiments) was launched into orbit in 2016. It was operated by the Chinese Academy of Sciences as well as ground stations in China. The satellite will make communication networks much safer, as it has a special laser which has several different properties, one of which is known as “the observer effect”, which basically means that if the satellite were to encode an encryption key in that quantum state, any interception would be obvious, making the satellite change the key, rendering it useless. So that is why this invention will make the network more secure and virtually uncrackable.

Secondly, the synthesized crystalline bovine insulin is a medical achievement made by a Chinese group of people in 1965, as it is the first time humans have been able to synthesize living matter. Insulin is used to help people who have diabetes, which was previously a feared disease that did not have a remedy and therefore led to many deaths, but it was made from the pancreas of animals and humans, making it not ethical. So, the Chinese group took it upon themselves to make insulin using genetic engineering, preventing more animals from being harmed in the way of convenience and moral ethics.

Thirdly is the USB drive. Before the 4G or 5G network was widely spread, the USB drive was and still is something we use in our day-to-day lives, with it being able to hold enormous amounts of information despite its tiny size and being easy to transport anywhere. Most businessmen, students and teachers in secondary schools and universities use it to transfer data, projects and homework. Such a revolutionary product was made by a China company named Netac Technology Co Ltd, which invented the first USB flash drive in 1999 and got a patent in China. Who could have guessed that this invention would be so practical that many spy movies would use it to steal or transfer information? Do you remember the thrilling scenes where the data is almost transferred and the loading bar is almost complete, but if the spy stays any longer, they will get caught?

The next one is the VCD player. VCDs were revolutionary as the only way to view movies at home before was using expensive Laser Discs or bad quality VHS cassette tapes. Back in the day, the price of Laser Discs was very high. Most people could not afford to buy Laser Discs, so they rented Laser Discs from the video rental store, needing to return them after a short period of time. The VHS cassette tapes were also not a good way for long-term storage, as the magnetic tape would degrade over time. Besides going to the cinema to see a film, the VCDs were a great way to store the movies cheaper, better and longer. Thus, the invention of VCD players in China in 1993 gained popularity very quickly in Asia, leading to fifty million VCD players sold to Chinese households, showing just how accessible it is, it also revitalized the film genre, leading to all the great movie franchises we know and love today. The spread of culture, knowledge, and communication has benefited the entire world.

The fifth one is the portable charger, which is an essential tool in our everyday lives. Nowadays, everyone has a mobile phone, but when your phone needs charging while you are not at home, you can just charge it on the go with a portable charger. In 2001, the first portable charger was invented by a Chinese company named Pisen. Over the years, there have been more sophisticated and compact designs invented with much better battery life that lasts longer. The ways of use are expanded to charging notebooks, game consoles or even cars, especially in cases of emergencies. The portable charger rental business also widely spread in concentrated areas with masses of people, such as cinemas and shopping malls.

Moreover, some scientists found that blindness is feared by most people because they could have it when they get related illness, especially when they are old. The main problem is that in most cases, it is incurable, so that why Angeleye is an extraordinary invention. Angeleye is a pair of glasses for the blind, which uses Artificial Intelligence and sensors to help them navigate, similar to those in autonomous cars. They can also recognize money, read texts and recognize colours. This impressive invention was made by Feng Xin Peng, a Chinese inventor, a near impossible achievement as the glasses only weight a mere 45 grams, a small object that is able to fit inside your pocket, but to the blind, it is like a whole new world.

Furthermore, technology can be connected to anything nowadays, even fashion. Fashion has now been paired with the world of blockchain technology, it can be applied so that we can verify if an item is genuine. The principle is that the new technology puts unique identity code on the blockchain. This technology focuses on four areas, namely anti-counterfeiting, supply chain management, asset management, and client experience. It can further be applied to marketing, the merchants can put a QR code on the label, when scanned, it tells its 'story' to consumers on their phones, which can save manpower as well as upgrade shopping experience.

Relating to construction technology, building a house can be more efficient, safe and "green". With housing demands getting high, no matter in China and most of East-Asian countries, such as Hong Kong and Japan, construction needs more and more money plus manpower. The rough construction environment may bring severe diseases to workers leading to high costs of medical expenses and even death. Thus, one of the biggest 3D company in China, Winsun, made a 3D printer for houses. According to the founder, Ma Yi He, constructing houses is painful and inefficient for human workers. "Why can't building houses be easier like how car and planes are manufactured by machines?" he says. The invention allows opportunities for new designs that would be challenging to achieve with conventional construction methods, reduces costs and wastes as it uses less materials, and has fewer constructions errors as it uses machines instead of manpower.

The next one is related to new advertising methods. In science fiction movies, we see commercials or information on glass billboard and windows, which is unbelievable and stunning. But now fiction has become reality as now Augmented Reality can be applied to glass, making ordinary windows turn into space for advertising. Inspired by Tom Cruise's action movies, the founder of Netcars Technology, Chen Jia, launched research dedicated for nanotechnology, which lead to the design of AR optical technology, new telecommunication electronics, and new material science. Meaning other than advertising, the company can also produce smart vehicle information systems, smart helmets, and smart glasses, suggesting that the fictional paradise of a future, may not be so fictional after all.

Last but not least, we have the "Internet car". In our everyday lives, we spend a lot of time travelling, especially in cars, so a Chinese company, SAIC, and an Alibaba group company, Banna, made the world's first internet car in 2016. It uses 4G and Wi-Fi to connect with the internet to provide entertainment and give accurate information to the driver as well as passengers. It has its own operating system which can do anything that you can imagine, such as flying a drone, controlling household appliances, talking to other cars, finding a gas or charging

station, restaurants and even booking cinema tickets without using your mobile phone. It paved the way for the development of modern cars, especially in electric cars. This marks the beginning of the digital transformation across the automotive industry.

As you can see, China has a lot of inventions, no matter in the past, present or future. They also have a wide variety, ranging from space technology development, medical treatment, human civilization inheritance, culture disperse, construction, marketing and transportation. We are looking forward to see how China will change the world with its new inventions, hopefully they can treat the untreatable, such as cancer and Alzheimer's, in the future.

China's Intangible Contributions: the Invention that Resides in Our Hearts

Shanghai American School Pudong Campus, Jin, Sophie – 14

When you think of what China has invented for the world, what do you think of? Most people's minds would automatically flash images of China's four great inventions: smooth paper, the versatile wood block printing, deadly gunpowder, and the guiding compass. Some people would think of China's more modern inventions, including the lifesaving artemisinin, and the advanced high-speed train. Nonetheless, all these inventions share one similarity: they're all visible, tangible objects. It's only natural that they're the most well-known of the bunch. They get a lot of media coverage and are present in people's everyday lives. However, there's an invention that importance rivals all of those. While it cannot be seen, touched, or heard directly, it plays a significant role in shaping society both in the past and today.

So, what is this intangible invention? This invention is a way of living, a way of ruling, a way of interpreting what it means to be human. It's the deep, meaningful, Chinese philosophy. There were multiple branches of Chinese philosophy, and it evolved a lot as the dynasties went by. Though one of the eras where Chinese philosophy flourished was the Spring and Autumn period to the Warring States period of ancient China. Contrary to expectations, while this time was replete with chaotic wars and deadly battles, it was also an age of massive cultural and intellectual expansion, later being known as the Golden Age of Chinese philosophy due to its wide range of thoughts being freely discussed. Soon many of these thoughts formed together into schools, teaching students to pass on their principles. This phenomenon is known as the Contention of a Hundred Schools of Thought. While there were several thought parties present in this period, there were three main beliefs that dominated the era, and have lasting significance up to today.

The first main belief was Confucianism. Confucianism originated from the philosopher Confucius, who emphasizes ethics, good behavior, and moral character. These are achieved through the virtue of *Ren*, meaning humanity, leading to more virtuous behaviors including respect, altruism, and humility. One renowned example is the quote of "Do not do unto others what you would not want others to do unto you," otherwise known as the golden rule of Confucianism. Confucianism also entails the concept known as filial piety, or in other words, one's devotion to one's family. This devotion can be expressed through numerous ways, such as worshipping your ancestors, obeying your parents, and the usage of metaphors referring to family like using the term "son of heaven" to describe the emperor. Family was the most significant group in Confucian principles, where it states that devotion to family can only strengthen the society it belongs to.

Not only is family a crucial aspect of Confucianism, but education is also a key element. Confucianism states that a virtuous character is formed through education. One of its ideas is that people are good at heart, though they may have strayed from the appropriate forms of conduct because of a lack of quality education. Confucian rituals were designed to nurture this respectful attitude and create a sense of belonging within a group. Confucianism puts great emphasis on these qualities because it could affect the world through the concept of cosmic harmony. It's believed in Confucianism that all natural disasters and conflicts are the product of straying from the ancient teachings. All these ideas are compiled by Confucius' disciples into a book called *Lunyu*, which is studied by later dynasties and even today!

The second core belief was Taoism. Unlike Confucianism, Taoism doesn't promote rigid rituals and social order, but rather encourages living in harmony with *Tao*, or the universe. This includes maintaining a balance in many things. For example, one of the core principles of Taoism is the belief in balancing out the forces of yin and yang, which represent matching pairs. This is why there are many contrasting ideas like tall and short. These show that the universe is connected, and nothing stands on its own. Another concept of *Tao* that emphasizes balance is the idea of *Qi* energy. All living things have *Qi*, which is the body's way to maintain homeostasis. It's believed that anything with balanced *Qi* is healthy, with good endurance and a clear mind. It's also said that *Qi* energy is what guides

everything in this universe, but it's different from that of a god. However, Taoists do worship gods, and there's one key figure that was given legendary status equivalent to that.

Lao Tzu was usually known as the icon of Taoism, or the representative of Taoism, particularly for the book he wrote called the *Tao Te Ching*, meaning the way and its power. It contains a collection of quotes depicting Taoist thoughts and action that guides Taoist believers. However, several historians doubt the existence of Lao Tzu due to the lack of evidence, claiming that the *Tao Te Ching* is a gathering of quotes from many authors in China's early dynasties. Nonetheless, whether Lao Tzu truly existed or not, what's indisputable is his profound influence in Taoism.

The third and last major belief was legalism. Legalists believed that all humans are more likely to commit wrongful acts than right ones since they're motivated by their own benefit and hence require a strict legal system to control their impulses. For example, according to the tenets of Legalism, if it's in one's best interest to murder another person, then the other person would be murdered. Therefore, to prevent such incidents from happening, the ruler must enact a legal system which would direct people's inclination to serve their own benefit towards the good of society. As a result, the person who wants to murder their neighbor is prevented doing so by the law but would be permitted to kill others by joining the military. Through this method, the person's selfish intentions are satisfied and the nation benefits from a committed soldier. In this way, the population of China was controlled. It was a stark contrast to Confucianism and was developed by a philosopher named Hanfei Zi.

Historians think that Hanfei Zi was a student of Xunzi, a Confucian reformer who abandoned the Confucian principles that humans were inherently good, stating that if they were, they wouldn't need to be taught how to be good. Hanfei Zi extended on this aspect of Xunzi's ideas as well as combined it with early writings of Shang Yang, a statesperson, to develop the philosophy that, since humans are naturally evil, laws to control humans are necessary for upholding the structure of society. It's an effective form of governing at the time as China's populace had experienced war for centuries, hence enacting a legal system to control people's detrimental impulses was the best way to deal with the chaos. It's why not only did legalism tackle everyday situations, but also addressed how one should conduct themselves during wartime. This is why the Qin state, the state that practiced legalism first, ended up being the victor in a long bloody war against hundreds of nations, which comes to show that with harsh circumstances, come harsh policies.

Despite being invented thousands of years ago, these three philosophies are still relevant to the modern world, whether they be used in policy making, or just guiding how we behave in general. For instance, legalism is practiced in many nations today as there are many punishments in place for people who commit crimes, such as imprisonment and the death penalty. However, this philosophy is also balanced out by ideals of Confucianism to prevent the people from uprising due to the harsh system. Confucianism is also relevant in other aspects of society like business. Ma Yun, the co-founder of the Alibaba corporation states that even a large-scale company cannot last long in the market even if they know nothing about the principles of Confucianism. Taoism also connects with modern society as it talks about the idea of "integrating with the whole," which is the solution for many of our problems. On an environmental level, the reason we are facing climate change and pollution is because we only consider our own individual needs rather than taking the whole picture of the effects of our actions. In society, when we allow differences in race and culture to separate different humans, it easily leads to conflict and alienation. On a personal level, by rejecting the bad parts of ourselves, we are prone to stress and depression. Therefore, by integrating oneself with the whole picture, these issues could be prevented. By utilizing the three main philosophies, we are continuously improving our society, and are speedily advancing.

While it's hidden from the eye, it's evident that these three main philosophies are having a significant impact, whether it be in the past, or in our present society. So, next time you're thinking about China's great inventions, don't forget to give the philosophers some credit!

"Chinese Inventions: Compasses"

Shanghai Singapore International School, Albert, Austin – 12

Before the compass was invented, explorers had no other choice but to look at the sun, moon and stars for directional guidance. Magnetic rocks were originally utilized by the Chinese to distinguish north and south. Later on, this method was integrated into the compass's design. Nonetheless, the original compasses, were not intended for use in navigating. Originally developed in China in the fourth century BC, crude compasses helped people arrange and balance their surroundings and lives by literally showing them the path acted as direction markers, mostly employed by the Chinese to create order and harmony in their surroundings and daily life. The magnetic compass was first created by the Chinese, which you already know, in the eleventh century A.D., and a century later it was used throughout Europe and the Islamic world. In the end, the magnetic compass's most important application was as a maritime navigational tool in the late Middle Ages.

Well, when the Compass was born, it wasn't perfect, it evolved and got better each time, from a spoon in the middle of a plate to a fully functioning piece of mystical magic! The first Chinese compass was a spoon in the middle, it was called Sinan, it did have some disadvantages, it was heavy and not easy to carry, for a start and if the surface was not very smooth, the spoon may not rotate due to too much resistance. They later replaced the spoon with a magnetic needle, the invention of the magnetic needle led to the discovery of magnetic declination. Later on, some people also replaced the spoon with a fish, made from steel or wood or a tortoise. Then, a new type of compass known as a Luopan was created by fusing an index plate with a magnetic needle. Did you know that the origins of this wonderful creation may be traced back to the Chinese art of Feng Shui? This art is founded on the idea that the arrangement of objects within a building can have an impact on several elements of life, including harmony, wealth, and health. Feng Shui masters might use the magnetic needle's spin to determine the best place or time for a particular person or subject. The significance of Feng Shui has diminished over time, yet the compass has gained recognition as a national intangible cultural treasure. In Wanan Ancient Town, Anhui Province, there is even a museum dedicated to compass culture. Then after that, it was improved to the compass which we know today, thanks to the first compass created by the Chinese, now we can have our voyages to be more "trouble-free." Well let's go in detail. An old Chinese compass had a magnetic needle that pointed in the four directions: north, south, east, and west.

The Chinese compass was based on a pivot point or a basin of water and had an iron needle that was magnetized. As the needle aligned with the Earth's magnetic field, it would naturally point in the direction of the magnetic north pole. Because it made it possible for sailors and travelers to

navigate even in the absence of stars and other markers, the compass was essential for navigation. In addition to being necessary for navigation, the compass was also a component of feng shui, the traditional Chinese practice of arranging spaces to promote harmony and wealth. There is no set time in written history when the compass became, however authentic appraisals put its underlying improvement during the Han line (between the second Century BCE to the first Century Promotion). During this time of old Chinese science and arithmetic, the investigation of earth sorcery (which they called geomancy) was dynamic.

The first compasses were based on this directional navigation principle. At first, there were named as 'south-pointing spoons', as the lodestone needles were molded into spoons with their 'handles' pointing toward the south, and could turn effectively over a smooth surface. It is hazy who thought of the compass, yet they were basically helpful in navigational undertakings during the Tune line particularly in 1040 Promotion, particularly by the Chinese military. The loadstone was subsequently supplanted by iron needles in the sixth 100 years, and the compass was subsequently kept in Europe in 1190 Promotion. Its overall design was changed to a parallelogram in the 17th century to make it easier to balance its pin, and Gowin Knight created the Knight compass in 1745. Rather than iron, the compass presently involved steel needles that could hold their attraction for a more drawn out time frame.

Due to the fact that it was simultaneously going through the Age of Exploration and industrialization, this improvement was crucial to European dominance and colonialism.

To sum up, the history of compasses and their revolutionary purposes make a huge difference to the world we live in, they have evolved through various stages and has made a great contribution and significance to our daily lives and who knew that it all started from just a spoon and a plate to something we call “wonder.”

"Gunpowder"

Shanghai Singapore International School, Arun, Krithiik – 13

Gun powder was invented by Chinese Taoist alchemist about 1000 A.D... It is generally believed that gunpowder spread to Europe during the Mongol Empire of 1200–1300 A.D... The interesting fact is that Chinese used this mainly for firecrackers while the Europeans created cannons and guns and dominated China in the mid-1800s. Gunpowder was invented by accident by a Chinese alchemist of the Tang dynasty while trying to discover a portion of immortality. He accidentally invented saltpeter, the main ingredient of gunpowder. Upon further experimentation, saltpeter was a combination of charcoal and sulphur. Saltpeter is now called as potassium nitrate. Gunpowder was first used to make fireworks during festivals and some major events. It was later used as an explosive substance in the military, such as cannons and fire-arrows. Cannons and muskets were used in the Song dynasty. Song military engineers found gunpowder to be helpful in warfare, leading to the development of early types of rockets, cannons, bombs, and mines. Gunpowder was first used in warfare as an incendiary, or fire producing, compound. Small packages of gunpowder wrapped in paper or bamboo were attached to arrows and lit with a fuse. Bombs of gunpowder mixed with scrap iron would be launched with catapults. Another use was "fire-spurting lances", which were a kind of flame-thrower using bamboo or metal tubes for their barrels. It is also used to make fertilizers, pigment and is known to treat burns and other injuries. Gunpowder is used to fire projectiles and to stop other explosives. It can also be used for signalling. I think gunpowder is very important because it is used in wars for making explosive weapons such as fire arrows, rockets, explosives, fire lances, naval bombs, hand shell explosives, hand cannon.

Gunpowder is used now also because it is also used in medicine. For example, to make skin grafts, medicines, and as a painkiller. It is also used to make fertilisers, pigments, and is known to treat burns and other injuries. Gunpowder is used to fire projectiles and to detonate other explosives. It can be also used for signalling. Fireworks are being widely used in the world which is made by gunpowder. It is also used in fireworks making apparatus. Many things have been invented by using gunpowder.

Gunpowder is also known as black powder. It is used in fireworks to produce colourful smoke. And gunpowder is the earliest known explosive. It is also used in mining and process such as cement production and iron smelting. I think gun powder is the most important invention of China because, there are many wars going on in our world now. Gunpowder made men equal on the battlefield as a bullet would affect all the years of training a knight receives while making armour and cavalry less effective therefore preventing the knights, lords and kings from ruling through force as gunpowder made warfare and rebellion both easier to occur and harder to crush. And gunpowder is extremely versatile. It is used to clean fireplaces and make paper or cardboard. It is cheap, easy to store, and easy to light. But on the other hand, millions of people have been killed by using weapons in wars which is not good. All people would prefer peace. Gunpowder is volumetrically inefficient. Depending on the grade, granulation, and loading density, gas production is only 45 to 55 percent of the total output. The remaining inert solids, largely dense smoke and fouling. Gunpowder is bad because it releases smoke when it burns, which creates air pollution. The smoke also contains chemicals that are dangerous to inhale.

I think that the invention of gunpowder was great. As it is used in wars and also used for many purposes such as, fireworks, weapons, medicines, mining, road building, colourful smoke, skin grafts, painkiller, fertilizers, pigments, pyrotechnics, injury healer, cement production and iron smelting. On the other hand, it causes people to die because of wars and harmful smoke is produced which leads to pollution and it is dangerous to inhale.

So, I can say that gunpowder can be used, but it should be used for only main and important purposes. And it should be used limitedly.

"Paper Making and the History of Paper"

Shanghai Singapore International School, Chen, Yung Cheng Justin – 13

Paper making was invented by Cai Lun in 105 CE, at ancient china. Paper making was a great success in human history, paper helped people a lot, dynasty before han dynasty, people where having to have to carve words onto animal bones to record the events that have happened in that time, and people have thought another way to record history, using bamboos. They start to write words on bamboos, or maybe write poems, this is easier to records things than to carve words onto animal bones. But then they have found another problem, the bamboos are too heavy if you want to carry lots of them to another place. So, during the han dynasty, Cai Lun had invented paper making.

Early Chinese paper was made from pounded and macerated plant fibers, primarily from mulberry bark, hemp, and bamboo. The fibers were mixed with water, formed into a pulp, and then flattened and dried to create thin sheets

Papermaking techniques gradually spread from China to other regions through trade routes and cultural exchanges. During the 8th century, papermaking reached Central Asia, including regions like Samarkand and Baghdad. The Islamic world played a significant role in refining and disseminating papermaking knowledge. The availability of paper contributed to the flourishing of Islamic scholarship, calligraphy, and book production.

Papermaking arrived in Europe during the 12th century through various routes, including the Islamic world and the Iberian Peninsula. The first paper mill in Europe was established in Xàtiva, Spain, around 1150 CE. European paper production initially relied on rags and textiles as the primary fiber source. The spread of papermaking technology contributed to the growth of literacy, book production, and the Renaissance.

Over time, papermaking techniques evolved and improved. In the 18th century, the invention of the paper machine revolutionized the production process, allowing for faster and more efficient papermaking. The paper machine mechanized the process of pulp preparation, sheet formation, and drying, leading to increased production capacity.

The Industrial Revolution in the 19th century brought significant advancements to the paper industry. Wood pulp, obtained from trees, emerged as the primary raw material for papermaking, replacing rags and other plant fibers. In the late 19th century, the development of the Kraft process, a chemical pulping method, revolutionized paper production by enabling the use of lower-cost wood fibers. The 20th century witnessed further innovations in papermaking technology, such as the Fourdrinier machine and continuous papermaking processes.

The paper industry has faced environmental challenges due to deforestation, energy consumption, water usage, and waste generation. However, the industry has made efforts to promote sustainability, including responsible forestry practices, recycling programs, and cleaner production methods. The use of recycled paper and the development of alternative fiber sources, such as agricultural residues and non-wood plant fibers, have also contributed to sustainability.

Today, paper remains an integral part of our lives, serving various purposes in communication, education, art, packaging, and more. The history of papermaking showcases the ingenuity and cultural significance of this versatile material, highlighting its impact on human progress and knowledge preservation.

The Impact of WeChat on China's Society

Shanghai Singapore International School, Li, Haoxuan Jackson – 12

The quick post-war development of the world saw humanity with mind-blowing technology in the 21st century. In the modern century's fast paced, interconnected world, few technological innovations had a greater impact on people's lives and their cognitive interactions than the Chinese application WeChat. WeChat had not only been a ground-breaking success but had revolutionized the communication and mentality of the Chinese society. This essay will dive deep on how WeChat as a Chinese platform influenced the social dynamics and payment systems of not only the present world, but humanity for generations to come.

Historians constantly argue over the negative effects of presentism and how arrogant perspectives of people in the modern day can result in horrible outcomes. However, no matter how phenomenal these ancient inventions of China can be, people in the present day fail to realize their impact. On the other hand, the recent success of the virtual application, WeChat, made by Tencent, made people acknowledge the technological wonders of China's virtual realm. But just praises might contribute to an imprecise comprehension of the feats that WeChat had accomplished to accelerate the development of human society and technology. This essay strives to further refine the knowledge over WeChat.

WeChat had emerged as a combination of many referenced platform features: that of WhatsApp, Facebook, and Twitter. All these elements had resulted in a transcending of traditional psychological boundaries, changing people's attitudes and perceptions to a whole new application that encompasses a vast range of functionalities, including instant messaging, voice and video calls, a social feed, and a video/clip program.

Though WeChat's unparalleled combination of various social aspects is remarkable, it doesn't only contain these advantages of the interactions systems — it had created an impact greater than simple convenience; it had reshaped biases and perspectives of China. This had transitioned China's definition as a country that heavily relies on its agricultural output to a state that is industrialized and independent. Before WeChat's launch, China's invention had been defined as the compass, paper, and printing. Though these inventions prove to be pivotal for the present-day, this had inspired the feeling that China had been falling behind throughout the world's technological advancement. But WeChat's groundbreaking success had reorganized people's perspectives of China, and thus proved to be one of China's most successful inventions.

Additionally, WeChat had formed a different digital citizenship than before. With the cultural phenomena 'WeChat Moments', people had started curating their personal image and selecting aspects of their daily lives to present themselves at their best to their society. By constructing these platforms for virtual projection of one's identity, WeChat had made its first steps towards reconceptualization of digital citizenship.

WeChat had also successfully redefined the way normal individuals complete their financial transactions. By doing so, WeChat had not only proved to be one of the most influential social media platforms; it had also made itself a payment utility that is most crucial to the lives of billions of Chinese people. With this revolutionary act, WeChat had rendered physical wallets and credit/debit cards obsolete for many. With WeChat Pay, WeChat is opening opportunities for future development of regular, day-to-day utilities. This had created a new market for integrated mobile payment services.

Furthermore, though people often neglect the implications that WeChat had brought to Chinese culture and generating of economic booms, there is a definite need to state it here. With WeChat Pay, China had opened itself to e-commerce platforms and businesses which facilitated an explosion of online retail, streamlining the purchasing process. WeChat had also proved itself vital to the growth of celebrities online, creating an enlightenment within China in which art is expressed in more diverse ways. With these subcultures and communities, WeChat had successfully started trends all over China, proving itself instrumental to spreading China's unique pop culture.

The creation of WeChat as a Chinese platform had reverberated throughout China's recent technological transformations. Its groundbreaking success changed not only people's interactions and forming connections, but had also fundamentally changed financial transactions with WeChat Pay. Moreover, it had influenced the cognitive perceptions of people, redefining China's worldwide definition, and revolutionizing the means of digital citizenship. As WeChat continues to expand beyond the borders of China, it is evident that, with its profound impact on cognitive reorganization and payment systems, WeChat will continue its feats that will establish a better society for generations to come.

"Cold Fusion"

Shanghai Singapore International School, Lin, Jed – 12

Cold fusion is simply nuclear fusion around room temperature. Cold fusion was first discovered in 1989 by two electrochemists, Stanley Pons and Martin Fleischmann. The material that they chose to fuel their attempted fusion reaction was Deuterium. These two soon quickly made the headlines, claiming that they had produced fusion at room temperature, in comparison to the beliefs of most scientists that fusion only occurred at extremely elevated temperatures (15 million °C in the center of the Sun).

To understand the concept of cold fusion, it is important to first grasp the principles of nuclear fusion. Nuclear fusion is the process by which two light atomic nuclei combine to form a heavier nucleus, releasing a large amount of energy in the process. This process is the source of energy in the sun and other stars, where the extreme temperatures and pressures enable nuclear fusion to occur. Cold fusion, on the other hand, gives the idea that nuclear fusion reactions can happen around room temperature, with extremely high and extreme temperatures not being needed at all. On the other hand, in Stanley and Martin's experiment, they used electrolysis to make a deuterium gas by taking apart water molecules that were heavy. However, other scientists had difficulty in replicating the experiment results of Stanley and Martin. Without consistent and reproducible results, the idea of cold fusion has not been accepted by the scientific community, therefore they dismissed it from their minds. Despite recent progress and renewed interest in cold fusion research, fundamental challenges and uncertainty remain. Due to the fact, lack of dependable and forgeable evidence from experiments on cold fusion reactions persist to be a crucial obstruction. Furthermore, the conceptual understanding of cold fusion is still in its infancy, and many attributes of the reaction composition and state of affairs are still poorly understood.

The benefits of cold fusion have a wide range of possible advantages. Cold fusion processes are thought to produce little to no radioactive byproducts at all and present a low danger of runaway reactions (controlling nuclear explosions), in contrast to conventional nuclear fission reactions, which generate radioactive waste and carry the risk of meltdowns and catastrophic mishaps. If the research of cold fusion has succeeded, it would bring great news not only to the scientific community but also to the entire world. Energy problems worldwide would be solved in just a snap of a finger. It would bring an almost infinite energy source to the world for use. If the United Nations summit discusses this technology and the countries gave approval, it would end serious environmental problems too. Numerous problems like global warming and carbon dioxide emissions would end in the blink of an eye. Not only does cold fusion end these problems, but it also cuts minor problems caused by the major ones. Apart from the fact that it is an almost infinite energy source, it is also a renewable energy source. However, one problematic aspect of cold fusion is, in the process of producing energy, it as a matter of fact consumes more energy that it essentially produces. On the other hand, the bright side of this is that in actual fact utilizes hydrogen, the element that has the greatest amount of inside of the universe. But the scientific community paid no attention to this and started their on work on hot fusion instead.

An example why I believe China can succeed in finding the secret to cold fusion in the future is that they have already done a project that is somewhat similar to cold fusion. On December 4th, 2020, China's "artificial sun" project was activated, and it sustained a nuclear fusion reaction for more than 17 minutes in total. The superheated plasma reached an estimated 126 million degrees Fahrenheit (roughly 69999982.222 degrees Celsius)— that is almost five times hotter than the sun, which gives out an extreme ten thousand degrees Fahrenheit (5537.7777778 degrees Celsius) at the surface and around 27 million degrees Fahrenheit (around 14999982.222 degrees Celsius) at its core. This was the closest that anyone had reached cold fusion since Stanley Pons and Martin Fleischmann in 1989. Deputy director of Institute of Plasma Physics, Hu Jiansheng said "It is of great significance for China to build a new consumption energy system dominated by green and low-carbon energy and fulfill China's commitment of having

CO2 emissions peak by 2030 and carbon neutrality by 2060.” The future fusion reactor will be able to create energy just like the Sun, making use of tritium and deuterium that are in abundance to give a steady stream of clean energy. The dedication of China to continue to create sustainable energy such as solar energy and using windmills to manipulate the strong gusts into making energy for them.

China’s technological advancement has surprised the world countless times. From inventing paper and gunpowder to making fusion reactors, even helping the mathematical community by inventing the first ever calculator: the abacus. The world of technology seems to be in the palm of China’s hand. The architectural feats of China are also great, making the Great Wall of China, which is roughly 21,200 kilometers (about 13173.07 mi) long, spanning from the Jiayuguan Pass in Gansu in the west to Hushan mountain in Liaoning in the east. It really seems that China will continue to strive for eons to come.

From Fiction to Future

Shanghai Singapore International School, Susanto, Stella Marcheline – 12

What if the ancient Chinese had never invented paper or the compass? How different would our world be? Books would be harder to make without paper to write on, and exploring the world would be tougher without compasses to navigate. We would live in a world where ideas spread slower and frontiers remained uncharted. It would be a dark and stagnant world.

China almost risked falling into this similar world in the early 2000s. By then, the nation was a giant of manufacturing industry who could make anything. But there was a catch: it could only make things based on other nation's ideas. Of course, this was not enough for China. They wanted to invent and they wanted to innovate. Just like in the ancient times, when they gave the world paper and the compass.

China was pursuing for the next “paper and compass” of this era, but they struggled to generate new ideas. Perhaps they had grown too reliant on other nations' ideas and forgotten how to come up with their own. They wondered how other nations did it.

In search of inspiration, China then turned to the inventors at Apple, Google and Microsoft and discovered that these people shared an experience—they all had grown up reading science fiction. These stories took them to see futures they would never otherwise imagine. Once they had glimpsed these futures, they returned to the present with ideas on how to make things better. And then, in time, with skills and resources, these ideas were transformed into reality.

Inspired by the value of reading science fiction, China hosted its first-ever state-sponsored science fiction convention in 2007, gathering renowned science writers, artists, scholars, and innovators from around the world to inspire the next generations to pursue careers in science, technology, and the arts.

In the years that followed, China had metamorphosed from a workshop into an innovation hub. Startups worked on sci-fi inspired concepts like flying cars, nanorobotic surgery, and an artificial sun, while the students eagerly studied AI, robotics, and renewable energy. News media were filled with stories of inventions being launched, government innovation programs being implemented, or hi-tech fairs being organized.

Science fiction remains to be one of powerful forces in nurturing China's new generation. Today, the works of science fiction writers like Liu Cixin, Hao Jingfang, and Chen Qiuhuan spark curiosity and creativity in millions of readers. From each page of their books, a new idea is about to be born. An idea that could build the future of China and the world. What kind of idea will you find in those pages?

"The Most Important Chinese Invention"

Shanghai Singapore International School, Tan, Jedidiah –

Have you ever wondered what was the most impactful Chinese invention ever? In my opinion, I think that gunpowder is the most impactful Chinese invention ever. First I will explain why in my opinion gunpowder is the most impactful Chinese invention, then I will give evidence to further prove why gunpowder is the most impactful Chinese invention, finally I will compare gunpowder with other Chinese inventions.

Firstly, I think gunpowder is the most impactful Chinese invention because without gunpowder invented by China, many major wars of ancient China would be very different, especially after and during the Ming dynasty. During the Ming dynasty there were armies armed with large cannons and were used both in attacks and defense. The invention of gunpowder was also used to make fireworks, fire crackers and mining. Gunpowder did not only affect China, but through the Silk Road, gunpowder was able to spread all around the world. At a period of time, the whole Europe was using muskets as the main weapon of war, murder and destruction. Even in the modern world, guns using bullets including gunpowder are still used in the military. This just further proves the impact of gunpowder.

Furthermore, this is the evidence behind why gunpowder is the most impactful Chinese invention. Since the 1300's, nearly 700 years ago, Europe and China started putting gunpowder into weapons, not only fireworks. Gunpowder weapons first started making an appearance in the army in a form of a cannon. At that time cannons are often used in sieges and several other battle situations. In the 1500's the cannon started making an appearance in a different form, a shrunken form able to be carried and used freely by an individual independently. This was a more flexible and lighter form of a cannon, although much weaker, this gave each soldier a chance to have a lot more power wielding this weapon compared to a regular sword. Even to the Modern day, gunpowder is still the firm basis of many weapons today. The single invention of gunpowder affected wars for the next 700 years permanently. This just proves the huge impact of gunpowder.

Finally, I will compare many Chinese inventions to prove why gunpowder is the most impactful Chinese invention. Paper and gunpowder are both very impactful inventions of China, there are many impactful outcomes from the invention of paper for example, it helps people spread information and knowledge through newspaper, books and magazines. It also impacted how people communicate through long distances and helped preserve ancient text. Although these are all very important, the sheer death, destruction and happiness produced by gunpowder through war, guns and fireworks are equally if not more impactful and important.

To conclude, I think that gunpowder is the most impactful Chinese invention because of the sheer destruction, damage, and death it caused for the middle age world. I also chose gunpowder as the most impactful Chinese invention because of the happiness, hope and heartwarming feelings that they can feel as they witnessed the moment as the fireworks extravagantly detonates in the gloomy night. This is why I chose gunpowder as the most impactful Chinese invention.

All You Need to Know about Paper

Shanghai Singapore International School, Zhu, William – 13

Hey, before we start, let me ask you a question. Have you ever thought about one thing. When and how the thing you are writing or reading on now is from? But if you are reading it from a digital device, then ignore the part above.

Now, if you are still wondering what I'm talking about and doesn't bother to check the title, its paper what I'm talking about. And if you ask me, I will say that it is one of the most used materials in the world. Well, to start with, paper is first invented in the Chinese Han dynasty 2000 years ago. Really impressive, is it? Well, no. Don't think that they have to do a million pages of math homework like us. Doesn't sound impressive now, does it? Well, the one of the first paper being made is used for wrapping not writing. It's much later that they started to write on paper.

Now, you might be wondering, what's paper made of, and of course, some people will say that it is made from wood, which I won't deny that is correct. But do you know that paper doesn't always have to be made from trees, it can also be made from any plant, old T-shirts and herbivore's solid waste. Yes, your eyes are not playing tricks on you, it's true. In fact, anything with fiber can be made into paper. And herbivores ate lots of plants, but they can't digest the plant fiber in the plant, so their solid wastes have a lot of plant fiber in them, so they can be made into paper. But remember, don't try this at home, or else.....

So, now, do you know what you need to know about paper? If not, read the paragraph again, if still not, then go research it for yourself. So, if you are using paper next time, you might think deeper when you see them.

"The Accident Fireworks"

Shanghai Singapore International School, Xiang, Mina – 12

Boom! Boom! Boom! Fireworks are always fascinating and dazzling, the brightness when colorful sparks appear in the night sky, the essential material that forms fireworks are also used as a weapon, gunpowder and is all the basis of all kinds of weapons. But who discovered it? Its China!

China was the country who discovered firecrackers, it first accidentally appeared in 200 B.C., when the ancient Chinese unintentionally put pieces of bamboo in a fire, and it made a loud crack sound. Hollow pockets in the bamboo would explode and they believe that evil spirits would be scared away by the loud crack sounds bamboo would make when they explode in the fire. There was a tale that a monster called “nian” who has an enormous body, sharp horns, and rigid claws, sleeps at the bottom of the ocean, and sneaks in villages to eat people during Chinese New Year. When everyone was escaping again from “nian,” an old man with white, grey hair, said he can stop nian from eating people, then he pasted red paper all over the walls and told people to light up firecrackers. Then nian was terrified by red papers and loud sounds of fireworks and he ran away without eating any people. In Chinese New Year, people would light up fireworks or firecrackers, and for other western festivals like fourth of July in America.

Sparklers are also like fireworks but different. They both produce beautiful spots of light but sparklers last longer than fireworks, and do not make a loud boom sound like fireworks. they burn for a prolonged period of time (about a minute), and they produce extremely bright sparkles. But of course, fireworks are better than sparkles for big festivals, and sparklers fit perfectly for other small events, like birthday parties.

By the time firecrackers were invented, it took thousands of years before fireworks which explode in the air were truly created. By 900 A.D., during the Tang dynasty, Chinese alchemists were finding a medicine that allows people to be immortal, so they try mixing chemicals such as Potassium nitrate, Sulphur, and Charcoal. They decided it was an innovative idea to add on to their first version of firecrackers, so they pour the black powder into bamboo tubes and throw it in the fire, it did make quite a loud “boom” sound, but the Chinese has still not yet figured out how to make fireworks that exploded in the air.

So how are fireworks made? There are a couple of main parts such as; the aerial shell, gunpowder, and stars. The aerial shell is the part that holds everything together, and it contains a fuse that burns slowly, and it explodes when the shell is in the sky. Gunpowder is located at the end of the shell and creates great explosions when heated and causes the material inside the shell to catch fire and be pushed outward. Stars are explosive pellets that can be covered with different metals and create the colored points of light we see in the sky. The fireworks can change colors when they are composed of metal salts that can naturally react and change different colors when they catch fire. Sometimes, you can see fireworks create shapes and symbols, this takes careful planning and packing the explosive pellets in a piece of card inside the shell, when the shell explodes, it pushes the pellets out in that shape into the sky.

By the 10th century, Chinese has figured out how to use the black powder for violent uses, warfare uses, such as making bombs and rocket cannons, and in 1200, China had built the first rocket cannons, using gun powder to aim at their enemies. In war, people also strap animals with firecrackers to bring the explosive device to their enemies and destroy their territories and of course, animals themselves would die, but it is an effective way to attack enemies without them noticing. Gunpowder traveled west when European and Arabian diplomats and missionaries began to visit China. Like China, western engineers also developed weapons from their own countries. They attached firecrackers to arrows that they shot at enemies, and this led to something wonderful: the aerial fireworks. This was how the first few fireworks that exploded in the air were created. Aerial fireworks show was held by the “fire masters” and their assistant: “green man”. Before the shows start, the green man would tell jokes to the crowd for

attention while preparing for the magical fireworks show, but the color of the fireworks at that time was just bright yellow, people still hadn't figured out yet how to add colors to fireworks, but the crowds' attention was still attracted by the bright spot lights in the sky. Being a green man, however, is a highly dangerous position, many were injured or killed when their fireworks were out of control.

Finally! The first version of fireworks that explode in the air was invented, but there is still one problem: adding colors to the fireworks. But luckily, in the 1830s, the Italians figured out how to add colors to the fireworks by introducing elements that can create a natural chemical reaction when they are heated together. Pyrotechnic mix produces a red spotlight, copper for blue, barium for green and sodium for yellow, and among all these colors research shows that blue is the hardest color to make, but why? This is because the evening sky is dark blue, so most blue fireworks do not show up well. The right balance of copper and other chemicals is essential for producing the best blue fireworks.

Fireworks are beautiful inventions but dangerous too, the brightness and colors have fascinated generations of people and it is one of the most used and famous inventions, for used when celebrating something like festivals or other ritual uses, it is also used in warfare to make bombs and rockets too, first discovered by China then it was added on by other countries like Italy, like adding colors to it. Lastly, be careful and have fun when you light fireworks! Fireworks are a uniquely beautiful thing to be able to watch in the sky as they explode and produce all sorts of colors, but they can easily be misused if it falls into the wrong hands.

A New Way Through Tradition

Western Academy of Beijing, Ma, Aristo – 14

China has a wide variety of noodle dishes. For many people living in China, noodles are a must, not an option in a satisfactory meal. Among the many varieties of noodles, a bowl of "oil noodles" (you po mian) caught my keen interest.

For a taste of these oil noodles, I went to a random restaurant to have a look. The noodles were wide and long, with colors and ingredients that looked highly enticing. I picked up a strand of noodles with excitement. However, after just one bite, I lost my appetite. The spice needed to be more; a dominating taste of soy sauce stood out and covered up all the other flavors. Immersed in disappointment, I put down my chopsticks and walked away.

I decided to make a bowl of oil noodles myself. I kneaded the dough and rolled it into belt-like widths. With the chili powder sprinkled on the noodles, and a spoon of hot oil that followed—just like that, a big bowl of oil noodles is completed. I took a bite, and although the noodles were neatly arranged, the taste still didn't meet my expectations. Something was not right. I put down my chopsticks and walked away.

As New Year's Day approached, I visited Xi'an, the city of noodles, to taste authentic oil noodles. The cuisine in Xi'an is unforgettable; as the saying goes: "There are countless delicious foods in Xi'an, and oil-splashed chili takes half of them." Each restaurant has its unique taste, unique look, and unique style. Locals enjoy a bowl of noodles at least once daily, if not more.

At the bustling food street, people strolled with undiminished enthusiasm despite the cold weather. The street was illuminated as night fell with dazzling lights from malls and restaurant signs. More people crowded the streets in the evening, and chefs worked energetically, creating a lively mood. A shop stood between noodle restaurants, although empty tables and seats made it lonely. It is simply "out of place". In the food market within the mall, various small stalls sell different dishes. Customers waited for oil noodles while tearing buns into soybean size pieces to put in the lamb broth later. What a particular way to pass the time! Finally, I tasted a satisfying bowl of oil noodles here. Carrying back my joy, I put down my chopsticks and walked away.

On the way back, I passed that peculiar shop again. I looked closer at it; the chef was actually a robot. Surprisingly, this place was also selling oil noodles. Seeing the crowded line in front of the traditional noodle shop and the emptiness in front of the robot-operated one, I was intrigued, never having seen a robot make oil noodles. How bad could it be? For some unclear reason I walked into the shop and ordered a bowl.

The robot behind me started moving, rolling the prepared dough to cover the entire width of the table. Then, a metal piece above sliced the noodles into belt-like widths. Multiple robots worked in coordination, resembling a performance. The noodles were inhumanly "flawless." They were slid into a pot, and with bubbling boiling water, they tumbled like fish playing in the water. Finally, the noodles were scooped up, rolled into a bunch, and placed in a large bowl. The snow-white noodles looked neat, probably too neat for oil noodles. At the same time, a spoon of spicy oil and chili pepper was poured over the noodles, making a sizzling sound that sent shivers down my spine. The aroma hit me, and just smelling it made me momentarily forget that I was already full.

A fragrant bowl of noodles was handed to me. Eagerly, I took a sip, but surprisingly, the taste was average. Chinese cooking needs the chef's warmth of hand and spirit to make the magic, but this robot still had a lot to learn. Yet the mere fact that it produced this bowl of noodles left me speechless, not to mention the lack of flaws.

It made me ponder: will we live to see a future with the fantasy of technology and the charm of tradition joining hands? Or is the little robot-run shop really "out of place"? But the robot would not answer me. What I could do was put down my chopsticks and walk away.



Non-fiction

Group 1

Gunpowder Power

Carmel Elementary School, Shapiro, Charlie – 6

I chose to write about gunpowder because I am interested in space rockets and I want to become an astronaut. I learned when researching about gunpowder that rockets evolved from simple gunpowder, and wanted to learn more. I also like studying Mandarin and learning about China.

Gunpowder was invented in the 9th Century by Chinese monks who were looking for a recipe for something that people could drink or eat in order to live longer or even to live forever. But instead of discovering a formula for helping people to live longer, the monks discovered gunpowder which had the opposite effect. It is very interesting that they actually invented something that was used to hurt or kill people instead of helping people to live longer.

I learned in my research that the use of gunpowder was first developed as a weapon by the Chinese military during the Song dynasty. The Song dynasty soldiers used gunpowder in explosive weapons such as fire arrows, bombs and even a kind of flamethrower! Gunpowder was such a military advantage for the Song military that they tried to keep it a secret from their enemies. The Song dynasty government even banned the sale of saltpeter to foreigners to try to stop China's military enemies from using gunpowder, but the technology was spread by the Mongols who used it to conquer other parts of the world.

People mostly know gunpowder is used in guns, but it is also used in other things like fireworks and mining. It is very interesting to me that gunpowder is used for something deadly (like guns) and can be destructive (such as explosives when used in mining), but also to make beautiful fireworks.

What other uses are there for gunpowder and are there some uses that have not been invented yet? The history of gunpowder should encourage people to keep inventing things because you never know what will be made out of it.

Jaozi – The First Paper Money

Carmel Elementary School, Turner, Adi – 8

Before paper money existed, people used items such as rocks and seashells to trade for houses and horses. The earliest currency was born in ancient Mesopotamia 5000 years ago, and since then, currencies have evolved from commodity money to metallic coinage and paper money. Nowadays, digitized currencies run the global economy, partaking in billions of transactions every minute. However, the history of money is far more complex.

The foundation for the development of paper money was laid by two inventions: the paper and ink technologies, both of which are part of the ‘big 4’ Chinese historical inventions. The paper was invented during the Han dynasty around 100 BCE. Beforehand, materials such as bamboo strips, silk, and animal skin were used as surfaces for writing, but they were relatively expensive, not accessible, and not reliable. The ink technology was developed more or less simultaneously with the paper. The traditional ink, mostly known as ‘carbon ink,’ was made by grinding inkstick (a mixture of soot from burned pine wood and glue) on an inkstone with water. These two innovative technologies allowed the invention of the first paper money, the ‘Jiaozi,’ and opened the door to a new era of global trade.

Jiaozi was the first paper note born in the Northern Song Dynasty in Chengdu, the Sichuan district capital of China, and it was first issued on April 1st, 1024. Before the Jiaozi, the traders had to use expensive metal coinage that suffered a few significant disadvantages. Firstly, the metal coins were hefty, and therefore difficult to carry around, resulting in divisibility and inefficiency issues. Moreover, they were easy to counterfeit and fast to wear and tear. The Jiaozi was revolutionary, solving all of the prominent issues of the metal coinage system. The portability of money increased due to the paper bills being lightweight and easy to carry. Durability also improved with the outstanding quality of the Chinese paper, due to the evolving paper technology. Divisibility stopped being an issue, and counterfeiting became much more difficult.

The impact of the Jiaozi was enormous, not only on the Chinese economy but on the whole world. Local and foreign traders distributed this new form of money all over the world, allowing improvements in financial intermediation, enabling merchants to conduct business more efficiently, and encouraging economic growth. Today, Jiaozi is displayed in the Chinese Finance Museum of Chengdu. It is an incredible milestone in global finance and is the first of many paper notes developed and printed over the years, which still serve as a crucial part of our daily lives.

The Chinese invention of Jiaozi is an excellent example of using leading technologies to invent a “game changer” in globalization. By improving trade efficiency, this Chinese revolutionary invention helped to make the world smaller, better, and more united than ever.

New Tales of China's Inventions

ESF Beacon Hill School, Wu, Ava – 7

Do you have an idol? Well, my dad does. That was a famous statesman, strategist, and engineer that I know in ancient China called Zhu Ge Liang. He was born in the year 181 and died in the year 234. He lived in the Three-Kingdoms period which was quite chaotic, and invented a lot of things like Mantou, landmines, Kongming Lantern, and repeating crossbows.

To my surprise, some inventions are still in use, for example, Kongming Lanterns. Although the others are not, outdated inventions give us ideas to upgrade them into newer and better ones.

One of his best inventions is the wooden ox and flowing horse (or Mu Niu Liu Ma in Chinese), which he created at 49 years old. He made it because his country went to war and the army was carrying heavy rice on the move. After he made a wooden ox and flowing horse, the army could just put the rice in its body which was actually an empty container so that the self-walking carrier could save people's energy!

Almost a month ago my dad bought a toy of the wooden ox and flowing horse for my brother and me. It was a pack of pieces, and we had to connect the body and the legs with bolts and nuts. Amazingly this hand-made animal walks with the right front leg and the left back leg stepping out at the same time, and so are the other two legs moving – It worked perfectly! It is of a baby puppy's size and my lower arm's length. All parts including its head and horns are wooden so it is light brown. As long as you softly pull the long rope in its nose, it starts to walk easily, unlike a box container.

It has no facial expression but I can still imagine that it is a happy ox, or a curious one.

Nowadays, people replace it with bags, wheel suitcases, and even newer driverless cars. In case you don't know, a driverless car can drive by itself when you are seated inside. You don't have to worry if it bumps into other cars because there are a lot of sensors all around it. There is also a map navigator inside the car so that it knows where to go as soon as we type in the destination. Unlike Mu Niu Liu Ma, there is a supercomputer inside the car that functions like the brain of a human. It can understand and respond to all the information from many sensors at the same time. I'm excited not only because it is cool but also because it can help people. Even blind people can have their cars in the future. And I don't need a driver's license anymore.

Recently when my family took a plane to South Korea for a skiing holiday, my uncle gave me a ride on his new Tesla. I was really surprised when I saw his hands off the steering wheel but the car did not bump into anything. The steering wheel was slowly and slightly turning by itself as if someone I couldn't see was steering it instead of my uncle. Sitting in the car, my family felt they were on the road to the future.

I feel curious about what Zhu Ge Liang would invent if he were here, but I'm sure that he would at least be as inspired as I am now by so many new inventions in the modern world.

What Do You Think?

German Swiss International School, Luan, Xavier – 7

Chapter 1: Introduction

Many kids want to be a scientist to calculate and to make their own inventions. I would think you will become one when you grow up. But I guess your inventions might be like a train, bottle or boat. I would like to invent something like a robot friend or magical medicine. Oh, and one more fun fact! Did you know that the wires we use for electronic devices, like the ones that connect your computer or TV, were inspired by Star Wars?

After Many centuries, China might even invent a machine that can help your parents with chores. If I'm wrong with what you might invent, what would you invent? Even if you don't want to be a scientist, it's okay too. Not being a scientist, you can also invent! You can use your imagination and create amazing things with paper, toys, or anything you can think of. And who knows, maybe one day you'll come up with an invention that changes the world!

Chapter 2: Old inventions

China has invented many things including paper making, moveable type printing, gunpowder, compass, mechanical clock, silk, umbrella, alcohol, acupuncture, tea production, iron smelting, porcelain, earthquake detector, racket, bronze, kite, seed drill, raw crop farming, toothbrush and paper money, and much more!

Chapter 3: Future Inventions

Now that we've learned about all the amazing things that China has invented, let's dive into the exciting world of future inventions! There are so many cool ideas and possibilities waiting for us. Are you ready?

Flying Cars: Imagine zooming through the sky in a car! In the future, we might have cars that can fly. How awesome would it be to soar above the clouds and go on adventures in the air?

Talking Animals: Wouldn't it be amazing if we could talk to animals and understand what they're saying? In the future, we might have devices that can translate animal language, so we can have conversations with our furry and feathery friends.

Magic Food Machines: Hungry? In the future, we might have machines that can instantly make any food you want. Imagine pressing a button and getting a delicious pizza or a yummy ice cream cone. It would be like having a magical kitchen!

Chapter 4: Dream big

Isn't it exciting to think about all the incredible inventions that might be waiting for us in the future? Remember, you don't have to be a scientist to invent things. So, keep dreaming, keep imagining, and always believe in the power of your ideas. The future is full of possibilities, and you can be a part of making it even more amazing. Have fun exploring and inventing, my friend!

New Tales of China's Inventions

Hong Kong Baptist University Affiliated School Wong Kam Fai Secondary and Primary School, Lau, Ho Yeung Avery – 9

The Invention of Gunpowder in China Gunpowder is one of the four greatest inventions of ancient China, alongside the compass, papermaking, and printing. This impactful innovation was developed by Chinese alchemists in the 9th century. It's accidental discovery shaped the course of human history. In this report we are going to talk about the origins and impacts of this powerful invention. In China, gunpowder is referred to as huoyao, translating to "flaming medicine".

Unlike papermaking and printing, the discovery of gunpowder was serendipitous. Alchemists, in their quest to concoct an elixir of immortality, stumbled upon a mixture of sulfur, saltpeter, and charcoal that produced explosive reactions. This new substance was initially used for creating fireworks to celebrate festivals and other significant events.

By the end of the Tang Dynasty, gunpowder began to see military applications. The Song and Yuan Dynasties' frequent wars accelerated the development of cannons and fire—arrows, launched from bamboo tubes. By the 12th and 13th centuries, gunpowder technology had spread to Arab countries, Greece, and other European regions, eventually reaching every corner of the globe. This invention profoundly influenced Chinese civilization and had farreaching global impacts.

The effects of gunpowder invention can be observed from ancient times to the present day. Gunpowder revolutionized warfare. It led to the creation of powerful new weapons such as cannons, muskets, and other firearms. Consequently, military strategies evolved, and the effectiveness of castles and fortresses diminished. Gunpowder technology spread from China to the rest of the world via trade routes like the Silk Road, fostering cultural exchange and economic growth. The production and trade of gunpowder and firearms became pivotal industries, stimulating global economies. In contemporary times, gunpowder's impact is still significant, but its applications have diversified. Modern firearms and explosives, rooted in gunpowder technology, have reshaped the conduct of wars and influenced military strategies.

The widespread use of guns has affected the outcomes of conflicts and shaped the world's political landscape. Apart from warfare, gunpowder is used in several essential areas. It's employed in mining, construction, and the creation of fireworks and special effects. Controlled explosions using gunpowder aid in mining operations and building demolitions, while adding excitement to celebrations and cultural events.

While gunpowder has many uses, the availability and misuse of firearms pose significant challenges. It's crucial to establish regulations and laws to ensure public safety. Debates surrounding gun ownership rights and preventing illegal trade constitute a global issue. Gunpowder's influence on the world throughout history is significant. It has revolutionized warfare, shaped technology, and impacted global trade. Today, it continues to influence military strategies, contribute to various industries, and raise safety concerns.

As the saying goes, "Knowledge is like gunpowder; it can be used to build or destroy, depending on how it is wielded." Understanding the history and current impact of gunpowder helps appreciate its importance and the dialogues surrounding its use in our modern world.

China's Future Inventions

Kowloon Tong School (Primary Section), Chan, Justin – 10

Do you know the four great inventions of China? They are papermaking, printing, gunpowder and compass.

The first invention is papermaking. During the Han dynasty, paper was made of plants, fishing nets and old pieces of cloth. Later, they were used as toilet paper, teabags as well as paper currency. The second invention is printing. It was first done by using wood. People carved Chinese characters on wood. The third one is gunpowder, which was used for fireworks for celebration. In battles, gunpowder was used as bombs and explosions. Now, gunpowder is also used in firearms. The last is the compass. Originally called Sinan, it used the sun, moon, and the stars to determine directions. Later, people began using a needle, with one end pointing north and the other pointing south to tell directions.

Nowadays people use apps such as Wechat, Alipay or even electric cars. One future invention will be robots which can communicate with us. They will act like humans, write poems, use mobile phones, play on computer tablets, read books, drink water and play sports. They also look like us having nails and teeth.

The second future invention will be flying electric cars. They will have the ability to expand or shrink, and we can give them directions to go to specific locations or destinations. The flying electric cars do not require manual driving and can take us to our destinations. They can also travel underwater.

The four great inventions of China have been passed down and improved over the years with technological advancement. In the foreseeable future, there is no doubt that human-like robots and flying electric cars will be possible inventions as well.

New Tales of China's Inventions

Kowloon Tong School (Primary Section), Chung, Cheuk Hin – 9

One day, I woke up with a strange robot beside my bed, it was very small. It had small cute eyes. It had a speaker that could talk to you. It had a flat body. It also had six wheels that automatically drove by itself, so you didn't need to carry.

It actually all started like this. Yesterday night a scientist sneaked into everybody's houses and put a robot in everyone's bedroom. The scientist said "Giving robots to everyone will make their lives very convenient, now when people go out to do something, most of them will bring their intelligent robots out. For example: We don't need cashiers now, since the robots can help us count how much we need, then we can put our credit cards on the robot for just two seconds, then the robots will just use WI-FI to send the money to the company.

You can also use the robot to remind you and tell you what you need to bring things, after the robot reminds you and tells you what you need to bring for the day, you can open the back of the robot and put your small things in it. But, in case something doesn't fit in there, you can use the special gear to clip your bigger things on it. It also has a lock. You must enter your passcode to open the back of your robot, and nobody will even know what your passcode is, because it is your fingerprint! If you ask your robot where you could go, if you want to go to a place, the robot can automatically tell you what to do.

The best thing is, this robot is very Eco-friendly, because it uses a solar powered battery, so when the weather is sunny or hot, it is very suitable for taking your robot outside!

It also has a water-sucking function. If there is very bad weather today, and even your house is flooding, you can activate the water-sucking mode just by pulling out two tiny pipes from the robot. If the robot detects just 0.1% of water, it'll suck it.

It's A.I. (Artificial Intelligence) so it can literally detect how you feel, if you feel bored, it'll play with you, if you feel sad, it'll tell you away to feel better, if you feel angry, it'll tell you ways to calm down. Doesn't that make you feel better?

At last, it knows how to come back to your house automatically, so you can tell it to do something outside while you rest or play.

Would you want a smart robot? I would love to have one!

A “FAB” Invention

Kowloon Tong School (Primary Section), Law, Siu Wai – 10

Our world is in danger. We need to protect it. The world population has reached 80 billion by the end of 2023. Most of us are using cars every day. Traditional cars produce exhaust gas which pollutes the air. Air pollution causes a lot of harmful effects on human beings, such as dizziness, fatigue and chronic respiratory diseases. So we should try our best to keep the world clean.

In China, we have 1.4 billion people and 426 million cars, air pollution is also a key problem to solve. Luckily, many people in China have a habit of using bicycles when they go out. In 2023, there are about 200 million bicycles in China. Moreover, more and more people started using new energy cars like electric cars. But these are not enough!

A new device is going to be invented to help solve air pollution. It is called “FAB” (Fresh Air Bike). FAB is a bike which can make air freshener on the road. On the bike, there is a small filter which is fuelled by the resistance of the bike (kinetic energy) and energy from the solar panels. When you are riding the FAB on the road, the wheels will produce energy for the filter. Then the filter will take the polluted air on the road in and change it into fresh air. The filter will keep working all the way. When more and more people use FAB, the air will be fresher, with less pollution and then, fewer illnesses.

The FAB filter uses clean energy: kinetic energy and solar energy. Clean energy does not cause pollution and harmful effects on nature. The material of the filter is all from recycled cans and plastic.

In addition, we can do exercise when we are riding on FAB. Everybody knows, riding a bike is good aerobic exercise. Aerobic exercise brings oxygen to our bodies, which can keep our bodies fit and healthy. When more people are healthier, they will have fewer illnesses. In this case, there will be less burden on national medical service. Therefore, we can spend the money on other sectors like housing, social welfare and education. Then everybody will be happier!

If the air is fresher, more plants will grow and more oxygen will be produced. Oxygen is very important for all the lives on Earth because we all need oxygen to survive. To save the Earth, we should develop FAB as soon as possible. I hope that we can have FAB, and a more beautiful and healthy Earth very soon.

My Health Buddy – The Smart AI Health Friend

Kowloon Tong School (Primary Section), Yau, Ka Man – 9

In the big world of super cool things like smart robots, super-fast trains, and apps like WeChat and Alipay in China, something really awesome is coming – our new friend, the AI Health Friend!

Imagine having a friend who's like a superhero with a super-smart brain, knowing a lot about keeping us healthy and always ready to help with our questions. What makes this friend extra cool is that it's connected to apps like WeChat. It's just like chatting with friends on WeChat – we can talk to our health friend there and learn cool things about our heart and sleep, like a detective always watching out for our health.

This AI Health Friend is also a buddy who helps us stay healthy, like a coach. It mixes the power of smart tech and super-fast trains. It learns about our bodies, our health history, and how we live. With all this special info, it gives us advice through WeChat that's just right for us. It tells us about the foods that are good for our bodies, reminds us to take medicine, and even finds possible health problems before they become big issues – just like having a super-smart doctor always with us. It sends us friendly reminders on WeChat all the time.

When we visit the doctor and need to pay for it, it's super easy! We can use Alipay, which is like magic money on our phones. All these super cool technologies together make our health experiences easier, more special, and really fast. It's all about making sure we stay happy and healthy with the help of our awesome AI Health Friend!

Robotic Chair

Maryknoll Convent School (Primary Section), Lee, Zoe – 6

This Robotic Chair is made by Zoe.

Zoe is a Hong Kong Scientist in the future. She likes to do a lot of things, like playing with friends, skateboarding and swimming. She enjoys inventing something that is not available now. She also likes to make something from recycled materials.

The invention that Zoe makes can help and make people's life easier, especially for the disabled, and those people that work very hard.

This Robotic Chair has many functions such as move, talk, sing, massage and transform. It is very smart, as smart as a computer.

When you are busy but hungry, it will feed you.

It can even help the disabled to walk and do many household chores. It can clean the windows with its laser beam eyes.

This Robotic Chair can change into a telescope. You can use it to see anything in the space. It can be your companion to share secrets. You can also put the trash into the head to recycle into whatever you want, but if you make it angry, it will be invisible till the next day.

Actually, it can do more than you can imagine. Do you want to have one?

Embracing Modern Innovations: A Journey of Gratitude and Inspiration

St. Joseph's Primary School, Chan, Ho Shing Brandon – 8

On a rainy September day, I rushed to catch the bus with my mom, eager to head back home. As we approached the bus, an old woman was struggling to count her coins. She just caused a delay in boarding. My mom urged me to assist her with my Octopus card, while she used her smartphone to pay for our fares. With a swift beep, the payment was completed smoothly, and the old lady expressed her gratitude for our help.

I wondered why people still rely on coins for payment when we have such convenient methods available. I took the opportunity to introduce the old lady to the wonders of QR code payment, she eagerly learned the new way within that short 10-minute trip. It warmed my heart to share my knowledge and help her adapt to modern technology.

As I dream of becoming a scientist when I grow up, I find joy in educating others about new technologies. Apart from e-payment, I seek to share some remarkable inventions from China that have significantly improved our lives.

China now stands at the forefront of modern innovation and technology. The country continues to amaze the world with its groundbreaking inventions, such as online shopping, e-payment, high-speed trains, and shared vehicles, which have modernized our shopping, travel, and payment experiences. Let's dive in!

Have you ever left your wallet at home? With e-payment, we can pay by using their smartphones. A simple scan or tap allows for transactions. There is no need to carry cash or deal with dirty coins. Who wouldn't appreciate the convenience of e-payment?

Online shopping, another fantastic invention from China, has transformed the way we shop. With just a few steps on our phones, we can order anything and have it delivered to our doorsteps. It's like having a magical store where everything is at our fingertips! I will never forget my dad ordered me a tailor-made Spider-Man birthday cake on the internet. That's an amazing Spider-man cake!

China's renowned high-speed trains have redefined long-distance travel. These trains can reach incredible speeds, making journeys swift and enjoyable. I took the high-speed train many times for family trips. Traveling at speeds of up to 300km per hour, these trains offer comfort and contribute to the reduction of air pollution.

The fourth remarkable invention for me to share is shared vehicles. It enables people to rent cars and bikes for short trips. It also promotes eco-friendly lifestyle and relieves the traffic congestion. My dad can also save a lot of time to find the parking lots.

These incredible inventions have made my life more efficient and convenient. They have inspired me to think the new inventions I could contribute in the future. Perhaps I'll invent something that will positively impact people's lives, just like these amazing innovations from China!

Let's express gratitude for these inventions and remain open to new ideas. Together, we can create a more innovative and promising future!

Hua Tuo the Inventor

St. Joseph's Primary School, Chow, John-Henry – 7

A Chinese governor had some sashimi. Not long after, he developed an illness. The governor suffered chest stuffiness and had lost his appetite. He then sought help from a physician. The physician had the governor drink two pints of decoction. Later the governor vomited up three pints of parasites.

Once upon a time, there was a wise Chinese physician named Hua Tuo. He was a master of acupuncture and surgery, and he had a special talent for making his patients feel better. Hua Tuo was also very creative, and he loved to invent new things that could help people.

One day, Hua Tuo was walking in the forest when he saw a group of monkeys playing. He noticed that they were very agile and flexible, and he wondered if he could use their movements to help people who were sick. So he invented a new kind of exercise called the “frolics of the five animals.” It involved imitating the movements of a tiger, deer, bear, monkey, and bird, and it was a lot of fun to do. People who did the frolics of the five animals felt more energetic and healthy.

Hua Tuo was also interested in anaesthesia, which is a way of making people feel less pain during surgery. He discovered that a mixture of hemp and wine could be used to make patients fall asleep, and he called it “mafeisan.” This was a great invention because it made surgery less painful and more successful.

Another invention of Hua Tuo was the “anaesthetic ball.” This was a ball filled with mafeisan that patients could inhale to fall asleep. It was a very simple and effective way to administer anaesthesia.

Hua Tuo's inventions were very important because they helped people feel better and live longer. He was a great physician and a great inventor, and his legacy lives on today.

Face Recognition

St. Joseph's Primary School, Hon, Hei Ching Horace – 8

Face Recognition is a popular technology. It provides a secure way to unlock devices and protect our information. Face Recognition has transformed the way and interact with our life.

At first, I think it is convenient because Face Recognition provides an easy way to unlock electronic products and even make payments. So that users just look at the devices and it can scan their face. Secondly, it's more convenient for elderly than using fingerprint. It creates detail map so as to uniqueness.

When I use Face Recognition, something bad happened on me. It makes me feel upset.

So here are three things that I think is bad.

If someone's face has a big change, it cannot be recognized. Also, Face Recognition is easily to be hacked or replaced by a simply photo, so it is not high secure enough.

Lack of privacy, family members or best friends may use relatives to unlock and access personal information.

Face Recognition is wholly dependence on the internet data. If there is no internet, the only personal device to be accessed, other functions will be limited and useless. And also, some poor people cannot have this kind of devices because devices are too expensive.

China has improved the face recognition technology to capture face by a 3D camera in order to enhance accuracy. For example, one of the largest restaurant chain KFC, have been combined 3D camera and liveness detection, "Smile to Pay" can prevent others to use photos as source. Nowadays, Smile to Pay is widely used in China, not only restaurants but public transport and physical stores as a new digital- payment method in 300 cities.

Lastly, I think Face Recognition can do better especially to have more security management on the database. It is really convenient, high technology so as to improve the way of life. Face Recognition has changed to a better and nicer life. At the end, I am very happy to share my opinions, hopefully it's useful to you all.

China's Legendary Duos

St. Joseph's Primary School, Hui, Yiu Lang Ethan – 7

Two inventions that China may create in the future are flying cars and frost guns.

I believe China can create flying cars because China is already a pioneer in manufacturing electric cars. Flying cars can support fast transportation because there should be less traffic jam in the sky. Flying cars can fly up and down to avoid clashing other cars. There will neither be buildings nor people blocking their routes. With the different colours of flying cars in the sky, it will look like candies flying around!

The second invention that China may invent in the future is frost guns. Frost guns can solve global warming because frost guns can make snow and ice in a short time. This is particularly useful for polar bears and Arctic foxes suffering from global warming. Frost guns could be a revolution for the world too as they could build an ice barrier quickly in dangerous situations preventing people from falling off! When the ice from frost guns are melted, it could also become freshwater so people in Africa or the homeless can quench their thirst like a self-defence "weapon".

However, if flying cars and frost guns are used wrongly, they could make a deadly combination for war purposes or become national disasters affecting the climate of the world. I believe China will set rules to control the use of their new legendary inventions.

New Tales of China's Inventions

*St. Margaret's Coeducational English Secondary And Primary School,
Chow, Ching Wang Jasper – 7*

The toothbrush was invented in China over thousands of years ago! It was made of bone sticks, rope and animal fur. It was invented in the Tang Dynasty in 6000 BC and it was called the Chew stick at that time!

The Chew stick had two sides. One end was a toothpick and the other was for brushing teeth. It had kept evolving and the Indians called it Chew Wood because every morning, they had chew one end of it. We now have electronic toothbrush.

The toothbrush is a hygienic item. It can be used to brush teeth to prevent cavities happening. Before the Tang Dynasty, people would get a lot of cavities. When you eat, food bits stick to your teeth if you don't brush and germs will drill through tooth and a black circle will appear.

Today's electronic toothbrushes are faster, cleaner and they are easy to use. It is important that we brush our teeth every day to have healthy teeth!

New Tales of China's Inventions

St. Margaret's Coeducational English Secondary And Primary School, Lee, Man Chun – 7

Gunpowder is one of the four great ancient China invention. Gunpowder can use to produce fireworks, rockets, cannons, bomb and mines. It is useful and helpful to build up the society. Among all products produced by gunpowder, I like fireworks the most. We can watch the fireworks during New year and other celebrations. Therefore, I am impressed by the inventor of gunpowder and fireworks in ancient China.

Gunpowder was first invented in the late Tang Dynasty in ancient China. Some Chinese Monks discovered the chemical formula of gunpowder when they are holding the life extending ceremony. Later in the Han Dynasty, an alchemist Wei Bo Xing wrote about a substance with gunpowder-like properties and pushed the development of gunpowder with other alchemists with experiments. Although original purpose for the alchemist to do experiments was to explore the immortality of life, they accidentally contributed in the development if gunpowder technology. The Technology of gunpowder was then transmitted to other countries such as Europe and Middle East and the technology was helped to produce weapons, such as fire arrows, bombs and fire lance and ever produce gun in the 13th century. These weapons are powerful in wars.

Despite the military purpose, gunpowder can be used in entertainment – Fireworks, which is usually seen during New Year celebration, it is one of the great invention with the help of gunpowder. Fireworks was invented by Chinese Monk Li tan in the medieval China. He was a fire cracker and he accidentally created fireworks when he tossing the bamboo into the fire, so that fireworks appear.

Although Fireworks appear long time ago, it has limited colour and shape; I hope firework come in different colors and patterns, long lasting time to make more people can see it.

The Magic Door

St. Paul's Co-educational College Primary School, So, Suet Ying – 8

Have you heard about the fantastic inventions from the ancient China? Chinese inventors invented things like paper and gunpower. They were super creative! Now, I have an idea for a magic door that can bring you to different places around the world in just one second. Let's explore this cool invention together!

Do you want to know how to make it? If you do, I will teach you. First, get some wood. Then, use a hammer to put the wood together. After that, attach a button to one part of the wood. Now, put some pictures of different places into the door. Press the button and choose a picture that you want to go there. Finally, open the door to adventures like a secret path through the place you want to visit.

Let's talk about the magic door's amazing powers. First, picture the door getting big, so ambulances and fire trucks can rush through for emergency. It is like a superhero door! If there's a big problem, the magic door can help heroes like doctors and firefighters get to people who need help fast. This is important during things like earthquakes or when the roads are really busy.

The second thing it can do is taking people on trips wherever they want. Since many people in China travel from their hometowns to work in cities, they can use the door to return to hometowns to visit their friends and relatives shortly. Then, they will not feel sad about missing home. During the Chinese New Year, families get together, but some family members are separated from Hong Kong and China and it takes time to travel for a reunion. Fortunately, they can use the magic door to visit grandparents and the elderly in China.

The third thing is traveling around the world in a flash. Usually, we have to take a plane and it can take hours or even days. Some people cannot fly because they are scared of heights or air crashes. Now, the magic door can help them to visit famous places like the Great Wall and the Forbidden City quickly and safely. It can even take people to places that are hard to reach by plane, like the polar regions.

Lastly, people can taste fresh food from all over the world. Fresh food is good for us, but it can spoil during long delivery times. With the magic door, we can get fresh food right away from farmers and fishermen and enjoy tasty and healthy dishes. Imagine you love strawberries, but they don't grow where you live. No problem! The magic door can bring fresh strawberries from a farm far away, and you can enjoy them whenever you want.

With the magic door, we can imagine a future where help arrives fast in emergency, families reconnect easily, everyone get a taste of the world's wonders, and we can have fresh food and become healthy. Step through the door, and let's have adventures together!

The Amazing Dialect Learner

St. Paul's Co-educational College Primary School, Tam, Hoi Kin Pascal – 8

China is a vast country and has many places to travel. There are also various kinds of languages and dialects such as Cantonese and Hokkien. Travelers might be confused when they explore different provinces. Some local Chinese youngsters cannot even communicate with their grandparents effectively. Many people might find it hard to learn because they do not have enough exposure to the language and culture of Chinese dialects. Some would feel shy to practice with their friends. But what if you can learn freely, and without the worry of others laughing at you? And, it's even at the tip of your fingers! We try to solve this problem by creating "The Amazing Dialect Learner". The feature of this app is for people to learn more languages by having a lesson with either a virtual teacher or a real teacher. It's up to you! There are also mini games to play. The goal is to help people pronounce the dialects correctly and connect people closer together.

First, you can choose the class size in the app. There will be private class or group class to choose from. Next, you can pick a virtual teacher or a real teacher. Each lesson is interactive which includes games. Users can store and revise all the lessons they have learned on the app anytime. You may unlock a special feature when you pass level four which is you can connect with other real users who are native speakers of the language you want to learn. You contribute to the community by teaching your mother tongue to other users while learning a new language. Users can make new friends and have a pressure-free environment to communicate with. The user's language skills will improve because of these special features. The Amazing Dialect Learner is designed to change the way Chinese people interact with each other. It can help people learn useful phrases and expressions in that language. Thanks to this technology, the people who didn't share the same language now can communicate effectively. Moreover, learning language is no longer boring with its fully interactive mode and enjoyable games. The learning progress is measurable by record of learning time and game points. Best thing of all, there are plenty of opportunities to practice with real speakers.

In conclusion, language is a door to cultural appreciation, a bridge connecting people, and a ground for respect. When we learn a language, we set off on a journey to understand the traditions and values within it. The Amazing Dialect Learner, by assisting language learning, is not just improving vocabulary; it's showing you a wider understanding of the world and promoting a friendly exchange of ideas and experiences. Hop on and give this app a try!

The Wonders of Lost Ancient Machinery

St. Stephen's College Preparatory School, Chiu, Matthew Jonas – 8

The ancient Chinese believed that events related to earthquakes or other vibrations of the Earth were important signs from Heaven. However, historic inventions were actually the first attempt to explain Earth's movements in a scientific way. The first earthquake detector was invented about 2000 years ago in China. The creator of the first seismograph was Zhang Heng who lived during the Han dynasty (25–220 AD). He was a brilliant astronomer, a mathematician and mechanical engineer. Zhang was famous for many inventions, such as the first water-powered armillary sphere to support astronomical observations; he improved the water clock by adding another tank and invented the world's famous seismoscope, which could predict the direction of an earthquake as far as 500km away. Moreover Zhang was also well known for his poetry which was studied by later Chinese writers. A true intellectual mind!

Out of all of Zhang's inventions, I was really fascinated by the first earthquake detector in history. The first seismograph invented was made of bronze, giant in size and very beautifully designed. Its surface was decorated with details of mountains, tortoises, birds, other animals and some antique writing. Some scientists question the meaning of its beauty – was it made to such detail to look more believable or function better? Perhaps it was a way for Zhang to express his artistic talents along with the brilliance of his engineering mind.

The detector featured eight dragon heads positioned in a circular pattern, each holding a bronze ball in its mouth, and there were eight toads placed under the dragons. The inner parts of the detector were complicated, but the mechanical function was basic; When the Earth shook, the pendulum inside would rock back and forth, causing a ball inside to roll down each of the channels. The ball would then hit a lever which opened one of the dragon's mouths. Then, another ball in the dragon's mouth would drop into the corresponding toad's mouth. Therefore, depending on which toad received the ball, this would indicate which direction the ground's vibrations came from.

The device had its first test in 138 AD when an earthquake was detected west of Luoyang, the capital city where Zhang studied. Very few believed that Zhang's invention worked. But after a few days, a messenger from the west of Luoyang reported that an earthquake had occurred there. This finally made people believe that Zhang's invention was brilliant and very accurate. Some people even called him the “Leonardo of China”, naming Zhang after the great Leonardo Da Vinci.

Many types of machinery were invented in ancient China, however, many of them did not survive. Zhang Heng's seismograph was unfortunately one such type of machinery. Even though his invention was lost in time, the records of its mechanics and design survived and many research teams from around the world studied them in hope to recreate this remarkable invention. This made me wonder how Zhang could create something so incredible and so ahead of its time.

The Creation of Single's Day

St. Stephen's College Preparatory School, Fong, Kyra – 8

Every year, at the stroke of midnight on the 11th of November, people rush to their computers, ready to grab the best deals on the internet. Do you know why? In fact, this is a recent Chinese invention!

Another name for the 11th of November is “Singles’ Day”. This is because the four “1”s of the numerically written date (“11.11”) look like 4 lonely people standing together. Singles’ Day was invented back in the 1990s, by four male college students at Nanjing University, who wanted to celebrate the idea of not being in a relationship.

The celebration became more and more popular among young people in China, and they soon treated the day as an anti-Valentine’s Day. Maybe single people were sick and tired of lovey-dovey couples on the street during Valentine’s Day and wanted a celebration for themselves! Singles used this day to organize parties and have fun with other young people.

In 2009, Alibaba, a famous online-shopping platform in China, had the brilliant idea of offering discounts on Singles’ Day. People soon flocked to the website to get the best discounts to treat themselves and celebrate being single.

Afterwards, other international online shopping platforms realized how powerful this day was, and they began offering big discounts on their websites on the 11th of November, too!

Nowadays, the 11th of November is one of the largest shopping events in the world. This shows how powerful new Chinese inventions are. What began as a silly idea among four Chinese college students soon became an international shopping event. Large retailers surely have those four students to thank, especially Alibaba, who earned more than \$71 billion US dollars during Singles’ Day in 2020.

In my opinion, this is a good holiday to remind us to love ourselves for who we are, but we must remember not to let our self-love be determined by materialistic things. Instead, we should focus more on spending time with family and friends and doing things we love.

An Invention to Protect Our Treasures

St. Stephen's College Preparatory School, Ng, Yik Fung Oliver Charles – 8

Can you keep a secret? My home is filled with treasures! Yours too! Have you heard of the Chinese idiom: 「家有一老，如有一寶。」 It means that if you have a senior in your family, you are blessed with a real treasure. I have two great-grandparents on my mum's side. My great-grandmother is 98 years old, and my great-grandfather just turned 102 years old recently. They are precious to me. How can our family treasures be protected?

Why was there a need for the invention?

In an August 2022 publication by the Non-Communicable Disease Branch under the Department of Health of Hong Kong, I read that a “fall was the most common type of unintentional injury, accounting for 39.4% of all injury episodes” that happened within a year. The publication was based on “The Unintentional Injury Survey 2018”. It found that 88.6% of injuries in older adults above 75 were due to a fall. Internationally, the World Health Organization published a “WHO Global Report on Falls Prevention in Older Age” in 2007. The percentages differ between countries, but the fall-accident numbers get bigger as age increases. And more seriously, “falls account for 40% of all injury deaths”.

What was invented?

The muscles of older people are weak, so they can easily lose their balance, fall and injure themselves. Some falls appear because older people might not be able to see properly or they might have chronic diseases. In 2015, a Chinese company designed an airbag vest to protect older adults from falls. The company that designed the vest is called Guangzhou S-AIRBAG Technology Company Limited. Airbags are inflatable cushions found in cars to protect humans from injuries when a car crash happens. S-AIRBAG puts airbags in a vest for older people to wear that protects the hip, head, neck, shoulders, back and tailbone. The Intelligent Vest was born.

How does the Intelligent Vest work?

The Intelligent Vest has two built-in helium inflators. When the vest receives the sensor data that the person is falling, the helium will be released within 0.08 seconds, and the vest will puff up before the person accidentally hits the ground. Older people in many countries, including nursing homes in China, are using it. The design team had started developing new materials and inflation methods five years before the vest was launched. The company has also created a mobile phone application called the “Proprietary App”. The vest can be connected to the application, which sends an alert when a fall occurs. The vest is chargeable with a magnetic USB charging cable, which costs about \$7,800 Hong Kong Dollars. S-AIRBAG has already created an airbag belt that protects older people's hips and pelvis when there is a fall. It costs about \$5,500 Hong Kong Dollars.

What will we see in the future?

In the 2022 Hong Kong publication, injuries from falls in children aged 4 were 66.4%. I wonder if an intelligent vest for young children will be made soon.

New Tales of China's Inventions

St. Stephen's College Preparatory School, Yeung, Lok Hei Gemma – 7

China's inventions have always been fascinating! Let's travel back in time to see what some of the amazing inventions were that still have an immense impact on our lives today. The compass, invented by the Chinese between the 2nd century BC and 1st century AD, was commonly used in Feng Shui for the layout of buildings. By 1000 AD, navigational compasses were also commonly used on Chinese ships, enabling them to navigate. Nowadays, we have compasses in smartphones, making it convenient for activities like hiking or traveling.

Another great invention was the kite, which was developed in China around 1000 BCE. It is very interesting that large kites were used to lift people and as a way for the army to signal warnings. Even though we mainly use kites for leisure now, they are still interesting items that help us navigate wind direction and provide a means to gather with friends.

The invention of paper was commissioned by the Emperor of China to find an inexpensive and portable writing surface. The Chinese government official Ts'ai Lun produced and recorded a technique for the mass manufacture of paper during the Han dynasty. Without the invention of paper, we wouldn't have books to read, paper to draw on, or exam papers to write on. Would there even be libraries?

With the rapid growth of technology in China, let's now take a ride on an imaginary path to unlock a one-of-a-kind future invention. Picture this: a star-shaped, rainbow-colored seed that humans can ingest, and it will magically grow inside the body. After 5 minutes of ingesting the seed, a robot will be developed within your body and reside inside your brain. It will control the body with its built-in GPS, like having a smartphone inside your body, and turn you into an ultra-smart machine. Similar to AI machine learning, the robot can learn about your habits, likes and dislikes, and recommend new activities or hobbies. What makes it even better? It can help you improve your weaknesses and strengthen your strengths. On a daily basis, it will wake you up, remind you of all the tasks you need to do, help you choose the food you need, schedule appointments with people you should meet, and make all decisions for you.

If this seed were an imaginary-come-true, would you be brave enough to take it? Do you want a robot to control you, or do you want to control your own body?

The Woman who Saved the World

The French International School, TKO, Kim, Seeun – 8

Do you know what Malaria is?

Malaria is a type of disease that can be cured now but not in the past.

Malaria is a disease that is spread by mosquitoes. Tu You You saved the world after Malaria spread.

Tu You You was born on December 30th 1930 in Ningbo, China. She was sick with Tuberculosis for 2 years from 16 years old and was forced to stay home. Tuberculosis is a bacteria that makes it hard to breathe.

She could have just lied there doing nothing for 2 years but she did not! She stayed home studying medicine.

After she was cured, she went back to school and she kept studying medicine. Soon in Vietnam, a disease called Malaria spread all over the country. Tu You You joined a group called Project 523. It was a code name for a secret military project in China to find a cure for Malaria in Vietnam. Tu had to spend a few years away from her family to join the military project. She found a plant called Sweet Wormwood which had the power to treat Malaria.

When she came back home after the project, all her work had paid off by saving many people's lives. She was known all over the country. In 2015, she was awarded the Nobel Prize for her amazing cure of Malaria.

Tu You You invented a cure for malaria. Therefore she is one of the most famous Chinese inventors in the past.

Rosie The Red Robin

The French International School, TKO, Lee, Lauren – 7

Have you ever wanted a pet bird that can take you from place to place?

Then let me show you a sweet friend that can take you anywhere!

Did you know people in China used to write letters then tie them to a pigeon's feet to communicate with one another? Rosie the Red Robin from China helps people to go from place to place and do a cleanup for the earth. When you first see Rosie the Red Robin, she is very small but as time goes by, she grows bigger and she can carry a lot of you. Rosie the Red Robin only needs one battery plus when it grows it likes to consume trash. It also likes to breathe in carbon dioxide and breathe out oxygen.

When it grows big enough, you can go inside and take a seat. You can also press the room mode button if you are sitting in the driver's seat and there will be shelter for you with air conditioning. It consumes trash to produce energy and electricity. If you are sitting in one of the passengers' seats, then you can use some control buttons to make the seat comfortable for you. When driving, you can pick whether to go fast or slow.

If it is rainy, I recommend going slowly when driving but if you are stuck in a storm, activate the emergency mode by pressing the weather button. That will help you get out of the storm quickly.

If your friend's bird and your bird are close to each other, you can transfer any amount of fuel to each other. Planes use a lot of fuel, and they emit tons of carbon which is bad for the environment. Rosie, on the other hand, will only emit oxygen. That way, our earth will be very clean and healthy.

You can also travel underwater even if you are riding on the bird, you just have to activate the submarine mode then the bird will transform into a perfect sub. It also can help marine life if you press the ecosystem button.

You can drive on land as well, just activate land mode and there you go. If you are tired of driving just press the auto drive button to have a break and relax.

Did you know every year we dump a massive 2.12 billion tons of waste and there are about 5.25 trillion pieces of plastic estimated in our oceans?

Rosie the Red Robin can help people clear all this trash if we all work together and help the earth because it is our home, the place we live in.

Rosie the Red Robin can also travel through space. You just need to activate the space mode, then you will be able to travel through space. You will discover new planets and find a way to live on them, but the earth is still our home for many years to come.

We cannot wait to see the next Chinese invention!

China's Most Famous Invention: Chopsticks!

The Independent Schools Foundation Academy, Cao, Caitlin – 7

Chopsticks! Chopsticks! Over one and a half billion people eat food with chopsticks every day. In China, people use 80 billion disposable chopsticks every year. Did you know chopsticks were first used for cooking?

Chopsticks were invented 5000 years ago. The first few chopsticks were used for cooking because they were long sticks reaching the bottom of the cooking pots and stirring the mixture. Around 2000 years ago, people in the Han Dynasty started using chopsticks to eat. Rice, dumplings, noodles and stir fry were some of the first foods people ate with chopsticks. Compared to knives and forks, chopsticks were safer to use. During those days, food started to be chopped up into small pieces and chunks before cooking in Chinese cuisine, so chopsticks became a perfect match with such bite-sized food.

The first chopsticks were made from twigs and sticks. Now, they are mostly made out of bamboo, wood and plastic. The wood and bamboo are cut to the length of chopsticks and then milled to the shape. Next, they are sanded smooth in preparation for painting. Finally, they are painted with decorations and waterproofed. Wooden and bamboo chopsticks are mostly only used one time. Plastic and metal chopsticks are mainly used in homes and restaurants but are more slippery and challenging to handle.

Most Chinese children start using training chopsticks when they are four years old. These chopsticks are helpful because they teach children how to pick up food and keep it steady. When kids use chopsticks, they improve their fine motor skills and hand-eye coordination.

When eating in China, people should behave and pay attention to table manners. It is polite to wait for the guest or an elder to put their hand on chopsticks first. Always remember to hold your chopsticks properly by holding them close to the top end and stabilizing the bottom using the middle finger. Then, use the index finger to move them around. Avoid having one in each hand, and never shovel food into your mouth. If you are not using them, put the chopsticks on a rest instead of the table. Using chopsticks as drumsticks and pointing your chopsticks at someone are both considered poor manners.

Chopsticks can be used in many different ways. In the kitchen, you can use chopsticks to skewer meat and vegetables and put them on the grill, beat eggs to make scrambled eggs, test cakes to see if they are baked, and pit cherries and olives. For dessert, you can use chopsticks to make do it yourself popsicles and toast marshmallows over a low flame. Other creative ways to use a chopstick include: poking and unclogging glue bottles, cleaning dirt from small spaces, propping up plants, and so on...

Chopsticks are an important tool in our daily life, not only for food but also for many other uses. Let's use fewer disposable chopsticks to protect the earth and keep good eating habits and table manners to use chopsticks properly.

AI Squash Robot

The Independent Schools Foundation Academy, Wang, Youying – 7

Hello, dear readers! Welcome to the stories by Katherine Wang! Guess what I'm writing about today? It's China's next great invention! I will convince Chinese scientists to create an AI squash robot!

First, the mighty AI squash robot I have in mind will develop my custom-made squash, help me do my physical exercises program. Of course, it will know everything about squash, and how to play the game well. It will arrange my squash timetable based on how much time I have and on my body conditions of the day. After collecting the daily data of my body, it will quickly plan my training. Usually, it will categorise my exercises with warm up routines to start the day. Then I will proceed to specific squash skills practices, match simulations and at the very end, exercises for reflexes and fitness. After I have completed all the exercises it will give me recommendations on how to play better! However, there are more wonders!

Playing squash is just like playing tennis, they both require strategy and tactics. I may invest a lot of energy in striking a ball that would eventually prove useless. For example, the ball lands on the middle of the court on my opponent's side, that would favor her in returning a killer shot, which I should not be able to catch after all! To avoid this, my AI squash robot will study and analyze my opponent's play patterns then make recommendations as to how I can combat her. In addition, the robot would do the same with the world's best young players and teach me how to play like them! If I do it often, it will make me more quickly to get used to the style and habits of my opponents, play as smart as the world's best young players, then win the competitions much easier! Though, I believe the AI squash robot can help more!

I love watching squash tournaments in my spare time. My AI squash robot will be the perfect partner to watch the games with me. We will talk about the performance of the world-famous squash players – how they tackle the stress when facing stronger players? How they handle the emotions after the games? I will also share my feelings in the competitions with its robot, seeking its objective view and constructive advises.

All in all, I hope Chinese scientists will invent this AI squash robot. Not only that it will be fun, but I will also be able to improve my squash techniques dramatically! I hold a little dream in the bottom of my heart that one day I would be able to stand in the court of the world-class squash tournament to fight for the Champion for Hong Kong, China. I would be so proud of myself and my trustworthy partner – AI squash Robot on that day!

Creative Writing
Non-Fiction

Group 4

New Tales of China's Inventions

Chan Sui Ki (La Salle) College, Chew, Kai Milo – 17

China has become a global innovation powerhouse, awe-inspiring the world with its astounding breakthroughs and inventive inventions. China's creativity has catapulted the country to the forefront of global innovation, with innovations ranging from technological wonders that have completely changed industries to revolutionary infrastructure projects that have revolutionized transportation. Exploring the new invention stories from China reveals a colorful tapestry of creativity, tenacity, and the unwavering quest of advancement. This essay examines a few of China's most famous innovations, illuminating their significance and the fascinating backstories. These innovations, which range from innovative technologies to environmentally friendly solutions, demonstrate China's steadfast dedication to influencing the future and making an impression on the global scene. Come along on an exploratory journey with us as we uncover the intriguing tales of China's innovation and their global repercussions.

1.e-commerce

Many amazing creations that showcase the knowledge and technological capabilities of Ancient China may be found throughout China's rich history. Papermaking, printing, gunpowder, and the compass are often hailed as the four great technologies that advanced human civilization. But when we look at China from a different angle, the dynamic, forward-thinking country invites us to discover more about the country's recent inventive history. However, if you consider things from a different angle, such as the buzz surrounding China's landscape, what thoughts come to mind when you consider the latest innovations from China? The concept of e-commerce will slowly be unveiled and emerge in your mind. Within a fingertip of work, dozens of different items can be purchased from the Internet no matter what kind of item they are. From tip to toe, from little as the articles for daily use to luxury. All the above can be seen within the movement of your hand. As you are interested in this associated subject, let's take a closer examination into it.

When individuals discuss e-commerce, what first comes to mind? As the horsemen of e-commerce and experts in their fields, Alibaba's Taobao and Tmall are the first sites that spring to mind for me. However, what enables them to maintain their dominant position in that kind of specific? Without a doubt, the orderly interaction between buyers and sellers, since vendors can list their own goods for sale to both at a set price or through an auction. Only a small portion of transactions are auctions; most transactions involve the sale of brand-new goods at predetermined pricing. Users of Taobao typically read reviews and contrast products from several stores. Alibaba's Alipay is a widely used payment gateway on Taobao. Additionally, Alipay is under one of the platforms of Alibaba which also functions as the e-commerce community of such. Besides, e-commerce has revolutionary potential that goes well beyond just business. It has been essential in propelling infrastructural development, urbanization, and the digital empowerment of rural communities. This confluence of entrepreneurial energy and technological improvement has opened the door to inclusive growth and societal advancement. It is indisputable that e-commerce is one of the main drivers of innovation, economic prosperity, and global connectedness as we consider the latest invention stories from China. It solidifies China's position as a leader in the rapidly changing fields of technology and business and embodies the nation's unwavering spirit of progress.

Talking about the history of the e-commerce about China, Tao Bao must stand a hard place among one of them as it is arguably one of the most also the most iconic e-commerce company among all of them. To provide some back story for it, Taobao is a Chinese online shopping platform which is well known as the eighth most-visited website globally in 2021 which Taobao.com is first register on April 21, 2003 by Alibaba cloud Computing (Beijing) Co.,Ltd. Taobao serve over 1 billion product listing in 2016, I believe all of us have ever purchased some goods from it which also Taobao has combined transaction volume of Taobao Marketplace and Tmall.com reaching 3 trillion dollar in 2017, which is a very impressive number. But how comes Taobao can become one the largest e-commerce company in China at that time? As there is a market gap when it first launched, as Business-to-business (B2B) platforms dominated the Chinese e-

commerce market. Taobao sought to close a huge gap in the consumer-to-consumer (C2C) market. Taobao capitalized on the enormous potential of independent vendors and customers by concentrating on C2C transactions. Besides, Taobao offered its services for free to both buyers and sellers, eliminating listing fees and commissions. This approach attracted many individual sellers looking for a cost-effective platform to reach a wide customer base. It also incentivized buyers to choose Taobao for its extensive range of products and competitive prices. As Taobao fostered an important sense of community among its users. It provided interactive features such as discussion forums, customer reviews, and ratings, which facilitated communication and feedback between buyers and sellers. This community-driven approach helped establish trust and credibility within the platform. We believe that is one of the reasons why Taobao stood out at that time and became one of the largest online shopping platforms at that time.

In summary, the emergence of e-commerce has embarked on the next avenue of life, providing millions of citizens with a better way of life. Through its convenience, expanded choices, entrepreneurial opportunities, job creation, and improved accessibility, e-commerce has undoubtedly transformed the retail landscape and empowered individuals to lead more fulfilling and prosperous lives. As we move forward, it is important to continue harnessing the potential of e-commerce while addressing challenges such as data security, privacy concerns, and bridging the digital divide to ensure that its benefits are accessible to all.

2.High speed rail

China has the largest population of any country, with an estimated 1.4 billion people living in its cities as of 2022. With such a tremendous size of the population transport is becoming one of the most essential uses for daily life in such a high country. With the help of high-speed railway, covering 38,000 km (24,000 mi) in total length by the end of 2020 as it accounts two third of the total length of world's speedway network. Additionally, a high-speed railway that can reach an incredible top speed of 430 km/h allows individuals to travel throughout the whole nation in the blink of an eye. "At current stage, China has 124,000 kilometers (about 77050.03 mi) of railway and 22,000 kilometers (about 13670.17 mi) of high-speed rail lines, while the latter has transported over 7 billion passengers," Huang Xin, an official with China Railway Cooperation. China's high-speed rail network has become the most widely used network in the world, changing urbanites' lifestyles and standing as an impressive engineering achievement.

Moreover, what brings the rise of the huge emperor of the high-speed railway in China? Historically speaking, the Chinese government recognized the importance of a modern and efficient transportation system to support economic growth and regional integration. Therefore, a significant commitment to developing high-speed rail infrastructure was made. The government made significant financial investments in R&D and construction, which allowed the network to grow quickly. Furthermore, a strong future vision and long-term planning underpinned China's construction of high-speed rail. In order to improve transportation connections within the nation, connect important cities, and expand the network, the government developed detailed plans and set high goals. This strategic approach allowed for coordinated and efficient implementation of high-speed rail projects. In addition to enhancing connectivity within China, the establishment of this vast and effective transportation network has established China as a leader in high-speed rail operations and technology worldwide. Other nations looking to create their own high-speed rail networks can learn from and refer to China as it develops its network and technological capabilities.

Economically speaking, there were first worries about the high-speed rail's cost, debt, and profitability, especially outside of China. Nonetheless, the Paulson Institute's analysis projects that the high-speed rail system will make a net profit of about \$378 billion, yielding a 6.5% yearly return on investment. China's national railway operator has also committed to putting more emphasis on improvements in 2021 that will increase the effectiveness and productivity of its high-speed rail network than on increasing track mileage. With the help of the high-speed rail, the construction and operation of high-speed rail projects have served as significant economic stimuli, generating employment opportunities, and driving local economies. The massive infrastructure projects created numerous jobs in construction, engineering, manufacturing,

and operations. The construction of high-speed rail also boosted allied sectors like retail, hospitality, and tourism, which boosted the nation's economy as a whole. For example, high-speed rail has significantly reduced travel times between cities, making business travel easier. This has simplified the process for businesses to hold in-person meetings, go to conferences, and investigate new markets. Economic growth has been fueled by the effective transportation system, which has expanded trade volumes and company collaborations. To clarify, high-speed rail network has boosted the tourism and hospitality industry in China. Travelers can conveniently explore various tourist destinations, leading to increased domestic tourism. The ease and speed of travel have also attracted international tourists, boosting the revenue of hotels, restaurants, and other tourism-related businesses as High-speed rail provides convenient and efficient transportation options for travelers, allowing them to easily access various tourist destinations across the country. Prominent tourist destinations, natural wonders, cultural heritage sites, and large cities are all connected by the vast network. The ease with which domestic travelers can now visit many parts of China as a result of this accessibility has increased domestic travel.

In addition, barriers to tight relationships between districts arise from their geographical conditions. High-speed rail, meanwhile, offers districts a stronger working relationship. Given the abundance of mountain ranges in China, conventional transportation infrastructure faces difficulties. The design of high-speed rail allows it to go through mountainous areas using elevated rails, tunnels, and bridges. This makes it possible for rail services to run continuously and uninterruptedly, linking previously unconnected areas and encouraging economic growth. Furthermore, China's high-speed rail network connects to neighboring nations including Vietnam, Mongolia, and Russia, reaching beyond its boundaries. This strengthens regional cooperation and integration by promoting tourism, cross-border trade, and cultural interactions. Consequently, high-speed rail stations are positioned in urban areas in a way that integrates them with the current transportation networks, facilitating smooth transitions between buses, metro systems, high-speed rail, and other forms of transportation, allowing for convenient and effective movement within and across urban areas. Similarly, senior high-speed rail stations are built with walkways and pedestrian-friendly access points linking them to the nearby metropolitan centers. Easy and safe access between the station and neighboring attractions, commercial districts, residential neighborhoods, and other transportation hubs is made possible via pedestrian bridges, underground passages, and dedicated pathways. The provision of pedestrian connectivity at high-speed rail stations augments their overall accessibility and convenience and facilitates smooth urban movement.

In conclusion, China's high-speed rail network is evidence of both its extraordinary technical prowess and its commitment to enhancing the quality of life for its people. Thanks to its unmatched speed, efficiency, and extensive connectivity, high-speed rail has revolutionized urban living by fostering regional integration, economic growth, and improved mobility. The world's most widely utilized high-speed rail network was constructed by China thanks to meticulous planning, rapid technical improvements, and a dedication to infrastructure development. China's experience and knowledge in this innovative transportation field can teach other nations a lot as they work to build their own high-speed rail networks.

As our investigation into the latest invention stories from China draws to a close, it is evident that the country's inventive spirit is unbounded. China's extraordinary achievements have had a considerable influence on the world stage in addition to changing its own society. China's steadfast dedication to scientific research, development, and fostering an innovative ecosystem has resulted in these achievements. The tales behind these innovations demonstrate the Chinese people's tenacity, resolve, and spirit of cooperation as they have toiled ceaselessly to push the limits of what is conceivable. The world will continue to be shaped by China's inventiveness, as we can see from the latest stories about its inventions. China's innovative path can serve as a source of inspiration for other countries, motivating them to allocate resources towards research and development, foster creativity, and embrace a future centered around technology and sustainability. Finally, the fresh stories about China's creation serve as a reminder of the seemingly endless possibilities that result from combining human intellect with tenacity and a dedication to advancement. We should expect China to continue producing amazing discoveries and technologies in the future, propelling developments that will impact society, our daily lives, and the entire planet.

New Tales of China's Inventions

Chan Sui Ki (La Salle) College, Lam, Ming Chun – 17

China, with its rich history and culture, has emerged as a significant contributor to modern inventions in the contemporary era. These inventions have not only had a profound impact on China's economic and technological development but also influenced the global landscape. In this article, we will explore some examples of modern inventions in China to showcase its significant contributions in the field of technology.

First and foremost, China has made remarkable breakthroughs in the field of electronics and telecommunications. Over the past few decades, China's electronics industry has experienced tremendous growth. It has become one of the largest producers of electronic products globally, including mobile phones, televisions, and computers. Furthermore, China has achieved important advancements in 5G communication technology. Chinese companies' development and deployment of 5G technology have positioned China as one of the leading 5G technology suppliers worldwide. This has not only propelled the growth of China's communication industry but also made significant contributions to the advancement of global communication technology.

Secondly, China has made significant progress in energy-saving and environmental protection technologies. As the global focus on environmental issues intensifies, energy-saving and environmental protection technologies have become increasingly crucial. China's government and businesses have invested substantial resources and funds into research, development, and application of these technologies. For instance, China has achieved important breakthroughs in renewable energy technologies such as solar power and wind energy. China ranks among the top countries globally in terms of solar power generation and wind power capacity, providing valuable insights for global energy transition.

Additionally, China has made important contributions in the transportation sector. China's high-speed railway system is recognized as one of the most advanced and efficient networks in the world. China's high-speed railway technology and construction capabilities have had a significant influence worldwide. The construction of high-speed railways in China has not only improved transportation efficiency but also stimulated economic development and improved the standard of living across various regions.

Moreover, China has made remarkable achievements in the field of artificial intelligence (AI) and big data technology. China's AI technology has made significant breakthroughs in image recognition, speech recognition, natural language processing, and other domains. Chinese enterprises have increasingly applied AI in various fields, including smart cities, intelligent transportation, and smart manufacturing. Simultaneously, China's big data technology plays a vital role in diverse sectors such as finance, healthcare, and e-commerce. The development of AI and big data technology in China has brought about innovative opportunities and advancements for China and the world at large.

Apart from technology, China has also made significant inventions and innovations in the field of healthcare and medicine. Traditional Chinese medicine, renowned worldwide, continues to play a vital role in modern medicine. Chinese scientists and medical experts have made important contributions in areas such as integrating traditional Chinese and Western medicine, herbal research, and traditional Chinese medical diagnostics and treatments. Furthermore, China has achieved breakthroughs in genetic science and biotechnology. Chinese scientists have participated in international projects, including the Human Genome Project and the research and application of CRISPR gene editing technology. These studies and technologies offer new possibilities for human health and medical treatment.

Lastly, China has achieved remarkable milestones in space exploration and aerospace technology. China became the third country to successfully land on the moon and has achieved significant breakthroughs in manned spaceflight, satellite launches, and space laboratory construction. China's manned space program and lunar exploration missions have garnered widespread attention and acclaim globally, opening new chapters in human space exploration.

In conclusion, China has made remarkable achievements in modern technology and inventions. Its inventions and innovations have not only propelled China's economic and technological development but also made significant contributions to global technological advancements and human well-being. With continuous investment and efforts in the field of technology, China is poised to remain a crucial force in global technological innovation.

New Tales of China's Inventions

Chan Sui Ki (La Salle) College, Lee, Chak Ming – 17

Chinese online shopping has emerged as a groundbreaking innovation, transforming the retail landscape both domestically and globally. With the rise of e-commerce giants like Alibaba and JD.com, China has become a force in the online shopping industry. This article delves into the unique benefits of Chinese online shopping, its fascinating history, and its widespread usage in today's digital age.

First, online shopping has five benefits. First, Convenience. Online shopping eliminates the need for physical store visits, allowing consumers to shop from the comfort of their homes at any time. This convenience is particularly valuable for busy individuals, those with limited mobility, or those residing in remote areas.

Second, Variety and Accessibility. Online platforms provide access to a vast array of products, ranging from everyday essentials to niche items. Consumers can explore numerous brands, compare prices, read reviews, and make informed purchasing decisions effortlessly.

Third Cost Savings. Online shopping often offers competitive pricing due to reduced overhead costs for e-commerce businesses. Additionally, consumers can take advantage of exclusive discounts, promotions, and comparison tools to find the best deals.

Fourth, Time Efficiency. With online shopping, consumers can swiftly find desired products using search filters or recommendations. This saves time compared to physically browsing through multiple stores, especially when seeking specific items or rare products.

Fifth, Seamless Transactions. Secure payment gateways and encrypted transactions ensure the safety of personal and financial information. Online platforms also offer various payment options, including credit/debit cards, e-wallets, and digital payment systems, enhancing convenience for consumers.

Then, what is the history of Online Shopping? China's online shopping traces its roots back to the late 1990s when a few pioneering entrepreneurs recognized the potential of e-commerce. Alibaba, founded by Jack Ma in 1999, played a pivotal role in shaping the online shopping landscape in China.

In the early 2000s, Chinese online shopping platforms experienced rapid growth. The increasing internet penetration, rising disposable incomes, and changing consumer behavior fueled the adoption of online shopping. Alibaba's Taobao, launched in 2003, became a game-changer, offering a platform for small businesses and individual sellers to thrive.

Mobile Commerce Revolution, the advent of smartphones in the late 2000s brought about a mobile commerce revolution in China. E-commerce platforms quickly adapted to mobile technologies, creating user-friendly apps and mobile payment systems. This shift allowed consumers to shop anytime, anywhere, leading to a significant surge in online shopping transactions.

Chinese online shopping platforms pioneered the integration of online-to-offline services. Companies like Alibaba and JD.com invested in logistics infrastructure, enabling fast and reliable deliveries. Moreover, they facilitated partnerships with physical stores, offering services like click-and-collect and in-store returns, bridging the gap between online and offline shopping experiences.

Finally, the impact and usage of online shopping. Online shopping has transcended geographical boundaries, enabling consumers worldwide to access products from various regions. This has facilitated cross-border trade, allowing consumers to explore international brands and unique products.

Consumer Empowerment, online reviews, ratings, and user-generated content empower consumers to make informed purchasing decisions. Social media platforms and influencers also play a significant role in shaping consumer preferences and driving online shopping trends.

Many traditional retailers have embraced an Omni channel approach, integrating their physical stores with online platforms. This strategy enhances the shopping experience by offering options such as click-and-collect, in-store returns for online purchases, and seamless cross-channel interactions.

Online shopping has created new business opportunities, particularly for small and medium-sized enterprises and individual sellers. E-commerce marketplaces provide a platform for entrepreneurs to showcase and sell their products to a global customer base, contributing to economic growth and job creation.

Online retailers continuously strive to enhance customer experiences through personalized recommendations, responsive customer support, and hassle-free return policies. This focus on customer satisfaction has become a key differentiator in the competitive online shopping landscape.

China's online shopping has revolutionized the retail industry, providing consumers with an unparalleled shopping experience characterized by a wide product selection, competitive pricing, convenience, and technological innovations. The evolution of Chinese online shopping platforms, from their early beginnings to the mobile commerce era and beyond, has shaped consumer behavior and influenced global e-commerce trends.

The Contactless Payment Revolution in China: A Glimpse into Advanced Features and Implications

Chan Sui Ki (La Salle) College, Li, Ka Hin – 17

Contactless payment methods have revolutionized the way transactions are conducted worldwide. China, in particular, has emerged as a global leader in this domain, with its advanced and widespread adoption of contactless payment systems. In this essay, we will delve into the concept of contactless payments, explore the features and technologies that make China's contactless payment ecosystem unique, and discuss the implications of this transformative trend on the economy, society, and consumer behavior.

Understanding Contactless Payments

Contactless payments refer to a secure and convenient method of making transactions without the need for physical contact between the payment device (such as a smartphone, smart card, or wearable) and the payment terminal. In China, contactless payments are predominantly facilitated through mobile payment platforms such as Alipay and WeChat Pay.

These mobile payment platforms utilize near-field communication (NFC) technology, enabling users to make payments by simply tapping their smartphones or scanning QR codes at participating merchants. This frictionless process eliminates the need for cash or physical cards, providing a seamless and efficient payment experience.

Features and Technologies of China's Contactless Payment Systems

China's contactless payment ecosystem boasts several unique features and technologies that contribute to its widespread adoption and success.

QR Code-Based Payments: Unlike NFC-based contactless payments prevalent in other countries, China has embraced QR code-based payments as a primary method. QR codes offer a cost-effective and easily deployable solution, enabling even small businesses and street vendors to accept digital payments. Consumers scan the QR code displayed by the merchant to initiate the payment, making it accessible to a wide range of users.

Mobile Payment Platforms: Alipay and WeChat Pay are the two dominant mobile payment platforms in China. They offer a comprehensive suite of services beyond payments, including peer-to-peer transfers, bill payments, online shopping, ride-hailing, and more. These platforms have integrated various functionalities into a single app, providing users with a one-stop solution for their financial needs.

Seamless Integration: China's contactless payment systems seamlessly integrate with various aspects of daily life. From retail stores to transportation networks, food delivery services, and even street vendors, contactless payments are widely accepted in almost every sector of the economy. The convenience and ubiquity of these payment methods have made them an integral part of the Chinese consumer experience.

Offline Payments: One unique feature of China's contactless payment systems is the ability to make offline payments. This is achieved through technologies such as dynamic QR codes that allow transactions to be completed even in areas with limited or no internet connectivity. The transaction data is stored locally on the payment device and synchronized when an internet connection becomes available.

Security Measures: China's contactless payment systems prioritize security to ensure user trust and protect against fraud. Advanced encryption algorithms, tokenization, and biometric authentication methods (such as fingerprint and facial recognition) are employed to safeguard user data and prevent unauthorized access.

Implications on Economy, Society, and Consumer Behavior

The widespread adoption of contactless payments in China has had profound implications across various sectors.

Economic Growth: The proliferation of contactless payments has facilitated the growth of China's digital economy. Small businesses and street vendors, previously reliant on cash transactions, can now easily accept digital payments, expanding their customer base and revenue opportunities. This shift has also contributed to the formalization of the informal economy, enabling better tax collection and economic transparency.

Financial Inclusion: Contactless payment systems have played a crucial role in promoting financial inclusion in China. Even individuals without traditional bank accounts can create digital wallets linked to their mobile phones, allowing them to participate in the digital economy. This has helped bridge the gap between urban and rural areas, empowering individuals and businesses in previously underserved regions.

Changing Consumer Behavior: The convenience and seamless experience of contactless payments have altered consumer behavior in China. Carrying cash has become increasingly rare, and consumers now expect merchants to accept digital payments. This shift has influenced the way people budget, save, and manage their finances, with mobile payment platforms offering additional features like budgeting tools and investment options.

Data-Driven Insights: The widespread use of contactless payment systems generates vast amounts of transactional data. This data provides valuable insights into consumer behavior, preferences, and spending patterns. Companies can leverage this information to personalize marketing strategies, develop targeted products and services, and drive innovation across industries.

e) **Challenges and Considerations:** While the adoption of contactless payments in China has brought numerous benefits, it also raises concerns related to data privacy, security, and potential monopolistic practices by dominant payment platforms. Striking a balance between innovation, consumer protection, and fair competition remains a challenge for regulators and policymakers.

China's contactless payment systems have revolutionized the way transactions are conducted, setting new standards for convenience, security, and integration. The unique features and technologies of China's contactless payment ecosystem, including QR code-based payments, mobile payment platforms, seamless integration, offline payments, and robust security measures, have propelled the nation to the forefront of digital payments. The implications of this transformative trend span across the economy, society, and consumer behavior, fostering economic growth, promoting financial inclusion, shaping consumer preferences, and generating valuable data-driven insights. However, as with any technological advancement, it is essential to address challenges related to data privacy, security, and competition to ensure a balanced and sustainable digital payment landscape. China's contactless payment revolution serves as a testament to the power of innovation and highlights the potential for transformative changes in how we conduct financial transactions globally.

The Rise of Electric Vehicles In China: A Paradigm Shift In Sustainable Transportation

Chan Sui Ki (La Salle) College, Lin, Wai Pan – 17

The rapid growth of electric vehicles (EVs) in recent years has transformed the global automotive industry, with China emerging as a dominant player in this market. China's commitment to reducing carbon emissions and air pollution, coupled with its ambitious plans and policies, has propelled the nation to the forefront of electric mobility. In this essay, we will explore the factors driving the popularity of electric vehicles in China, examine the government's supportive policies, and assess the impact of this shift on the environment, economy, and society.

Several key factors have contributed to the surge in electric vehicle adoption in China. First and foremost, it is air pollution. China's rapid industrialization and urbanization have led to severe air quality problems in major cities. Electric vehicles offer a cleaner alternative to traditional internal combustion engines, emitting zero tailpipe emissions and reducing harmful pollutants that contribute to air pollution and associated health issues.

Additionally, China's growing middle class and rising disposable income have fueled demand for personal transportation. EVs have become an attractive option for consumers seeking cost-effective and eco-friendly vehicles. Moreover, advancements in battery technology have expanded the driving range and improved the performance of electric vehicles, addressing concerns about limited range anxiety and charging infrastructure.

The Chinese government has played a pivotal role in fostering the growth of electric vehicles through a range of supportive policies. The central government has implemented stringent emission standards, including a dual-credit system, which requires automakers to produce a certain percentage of new energy vehicles or purchase credits from other manufacturers. This policy incentivizes automakers to produce electric vehicles and has led to a significant increase in their production.

To further encourage EV adoption, the Chinese government has provided generous subsidies and financial incentives for both consumers and manufacturers. These incentives include purchase subsidies, tax exemptions, and favorable license plate registration policies in major cities. Subsidies have made electric vehicles more affordable for consumers, while manufacturers have been encouraged to invest in research and development, production capacity, and charging infrastructure.

Furthermore, the government has invested heavily in the development of charging infrastructure across the country. China now has the largest EV charging network globally, with public charging stations in urban areas, along highways, and in residential complexes. This extensive charging infrastructure has alleviated concerns about range anxiety and has made EV ownership more convenient for consumers.

The rapid adoption of electric vehicles in China has significant environmental benefits. By reducing reliance on fossil fuels, EVs help decrease greenhouse gas emissions and combat climate change. According to the International Energy Agency, China accounted for more than half of global EV sales in 2020, resulting in an estimated reduction of 45 million metric tons of carbon dioxide emissions.

The shift to electric mobility has also created new economic opportunities for China. The government's support for the EV industry has spurred technological advancements and attracted domestic and foreign investments. Chinese automakers such as BYD, NIO, and Xpeng have emerged as key players in the global EV market, challenging established international brands. The growth of the EV sector has also created jobs, particularly in manufacturing, battery production, and charging infrastructure development.

From a social perspective, the increased adoption of electric vehicles has enhanced public health and improved air quality. The reduction in air pollution has led to a decline in respiratory diseases and improved overall well-being. Additionally, the popularity of EVs has shifted the public's perception of electric mobility, leading to a positive cultural shift towards sustainability and environmental consciousness.

China's remarkable progress in the electric vehicle sector serves as a testament to the transformative power of supportive policies and strong governmental commitment. The nation's efforts to combat air pollution, reduce carbon emissions, and foster sustainable transportation have made it a global leader in the EV industry. The factors driving the popularity of EVs in China, combined with the government's supportive policies and investments, have paved the way for a greener, cleaner, and more sustainable future. As other countries seek to emulate China's success, the rise of electric vehicles in China stands as a beacon of hope for a world transitioning towards a low-carbon transportation system.

New Tales of China's Inventions

Chan Sui Ki (La Salle) College, Yau, Tim Yau – 16

If there's a country that marvels at world-renowned inventions, no matter in technology or even medicine, it would be one of the most highly populated countries in Asia as well as the second largest country globally—China. Cultivating an ecosystem to support the manufacturing supply chain, the Republic of China has been regarded as the largest manufacturing country on Mother Earth since the early 2000s. Back in the first millennium A.D., some weapons and communicative instruments had already been invented, like gunpowder, which was a life-extending elixir of a mixture of elemental sulfur, charcoal, and saltpeter, movable type printing techniques, just to name a few. But how can it ameliorate and modernize today's China?

It goes without saying that navigation plays a quintessential role in a wide array of aspects, whether it be tourism or business. Yet, ironically, back in 1000 A.D., the compass was used in feng shui, a superstitious and unscientific belief of harnessing all the good energy. As early as 2000 years ago, Chinese scientists may have already known that the magnetism of the needle occurs naturally by rubbing an iron bar, resulting in pointing south and north. This has evolved into a navigational compass these days.

In addition to the Four Great Inventions, a supplemental therapy was invented by the Chinese Emperor Huangdi in 2500 B.C.. Not only did acupuncture involve utilising sharpened stones and long sharp bones, but it was also used for simple surgical procedures, like abscess-lancing. Words just couldn't depict how impressive it was! It's universally acknowledged that stylostixis involves stimulating sensory nerves in the muscles and under the skin, giving rise to the production of pain-relieving endorphins naturally. No wonder the Canadian singer Celine Dion and the American actor Robert Downey Jr. both desired to have stylostixis.

Back to today's technology, 5G, a swift transfer at a speed which is 20 times faster than existing standards, was launched by the three corporations in China in 2019. Ultra-reliability, low latency and high connection density have edged over the previous ones, for sure. As the old Chinese saying goes, "A thousand-mile journey starts with a single step." Believing that China's inventions with innovation will refine a lot, I am looking forward to the future in China under any circumstances.

New Tales of China's Inventions

Chan Sui Ki (La Salle) College, Yip, Chun Wai – 16

Nowadays, China has contributed many inventions that have changed the world and improved people's lives, such as high-speed rail, mobile payments, e-commerce, bike sharing etc. These new inventions show that China is one of the leaders in science and technology and it makes many advantages in the world. Also, China had some serious problems, and it used their inventions to solve the issues. We can see that China inventions are very important to this world. In this essay, I will introduce some inventions of China and how it changes the world.

In 1955, the European union defined high-speed rail can operate at least 250km per hour on new tracks. Then, the first high speed rail system was launched in Japan in 1964. It was called the Shinkansen or the bullet train. The Shinkansen connected Tokyo and Osaka these two major cities in Japan. After launching them in Japan, France was the next country to develop high speed rail in 1981. In addition, there are many advantages of high-speed rail in China and it changed the world. Nowadays, traffic congestion is becoming a common problem around the world and a lot of countries are trying to implement different measures to address the problem. High-speed rail is the solution to this problem. It connects major cities in a shorter time than trains, cars and buses. Also, this can make it easier for people to travel for various activities. There is another benefit from high-speed rail is the reduction of smog and air pollution. Smog might not have an immediate health impact, but which might lead to chronic illnesses such as cancer. On the other hand, high-speed rail also creates a huge number of job opportunities such as train engineers, crew members, rail drivers...etc. Moreover, ticket sales and operation systems also create job opportunities in field of information technology. Next, high-speed rail is a safer way to travel. There are many accidents in the world. The statistics show that over 38000 people die from car accidents every year. The high-speed rail can reduce these serious problems. It can offer a safer and more efficient to driving, it also provides some safety features such as automatic braking, collision avoidance and fire protection systems. It makes more people to travel by high-speed rail so that it can reduce number of people to drive a car. Therefore, high-speed rail has so many benefits to China or even the world.

Mobile payment is another invention from China. It can explain as mobile money, mobile money transfers and mobile wallets, is a processing services operated under financial regulations from a mobile device. It can be used in physical stores, online platforms.....etc. Here are some benefits from mobile payment technology. It is a way of paying for goods and services using a smartphone. It can use in physical stores and online platforms. In China, there are two main types of mobile payments, WeChat pay and Alipay. Customers can give the QR code to pay for the things. One of the major benefits is that they are fast to pay. They are faster than using credit cards and traditional cash transaction. Mobile payments usually just take about a second because they do not need to swipe any cards. Secondly, Mobile payments are very convenient to pay. Nowadays, people are carrying cash less and less. People always bring their mobile phone with going to anywhere. Therefore, these benefits make mobile payment is the most convenient way to pay. People just need to use their mobile phone to pay so they do not need to go to ATM to get some cash to pay a large amount of money. Thirdly, mobile payments carry out safer transactions. When people are using mobile phone to pay, they do not need to worry about losing cash or having it stolen and they do not need to worry about someone steal your ATM password because mobile payment can make use of biometric authentication such as fingerprints or face id as an additional security. It is difficult to hack your account for some illegal purposes. In a conclusion, mobile payments bring us a lot of benefits on daily life.

With smartphones and mobile payment become popular, e-commerce becomes possible on mobile device. E-commerce is used to buy or sell goods or services over the internet. E-commerce has rapidly evolved to become a combination of online and offline retail. E-commerce can divide into three main categories, such as online marketplaces, retail sales and business-to-business. One advantage of e-commerce is that it has a lower startup cost. Physical stores cost a lot because of rental, furniture and decoration. However, for an e-commerce store, the startup cost can be low as four hundred dollars. Taobao is one of the most successful e-commerce platforms that is easy to use. Another e-commerce benefit list that it is easier to encourage impulse buy. If you have some attractive product photography and with some color human emotion, you can craft online advertisement that drive impulse buy. On e-commerce platform, big data analysis technology has evolved. System can analyze browsing behavior and make suggestion on products that the user may have interest, and hence encourage people to buy more. Latest product that people may have interest can also be suggested by system. The third advantage for cloud-based e-commerce platform is that high number of orders can be processed in seconds. In online, we do not need to physically go to the retail store. In physical stores, they may have long queues for checkout. The long queue may make people leave because they do not want to wait long to complete checkout process. In opposition, with e-commerce, there is no waiting time. A customer just needs to order what they want anytime, anywhere and then pay online without delay. With the e-commerce store operates round the clock, the retailer can accept more orders than physical stores, and operates at a much lower cost.

Finally, bike sharing system is an invention that allows people to rent bicycles for short periods of time. There are two types of bike sharing systems, docking and dockless. Dockless systems allow people to locate and rent a bike using smartphone app and return from a dock. Docked systems require users to pick up and return bikes at fixed station. The first bike sharing system was launched in Amsterdam in 1965 but this system faced some problems such as theft and legal issues. Then, bike sharing system has been developed into different models. China was one of the countries that rapidly deployed bike sharing system. There are some benefits to people and society. For example, bike sharing can make people in better health and promote physical activity. Nowadays, people always drive a car or travel by bus to go to anywhere. These factors will damage their health because they do not have time to exercise. However, bike sharing is convenient for people to ride a bike. It can improve people's muscle, strength and mental well-being. Another benefit of bike sharing is that it can reduce traffic congestion and pollution. Since people always drive a car, it makes the road crowded and leads to traffic congestion. Also, if more people having a car, more toxic gas will be emitted and pollute the world. Bike sharing can alleviate the problems and overcrowded roads. Bikes can reduce the cars on road and address the problem of air pollution because it would not release toxic gases. In conclusion, bike sharing invention brings us to a better world.

All in all, these China inventions are not only beneficial to China, but also to the world. Now we can travel more easily and conveniently. Also, we can make a transaction more safely and easily. In the future, we, as a Hong Kong student, hope we could also create inventions that brings benefits to the world and enhance people's life.

New Tales of China's Inventions

Chan Sui Ki (La Salle) College, Wai, Lok – 17

China, a nation steeped in history and culture, has long been celebrated for its remarkable inventions that have shaped the world. From the compass and gunpowder to papermaking and printing, Chinese innovations have left an indelible mark on human civilization. However, the story of China's inventions does not end with these well-known contributions. In this essay, we will explore some lesser-known inventions from ancient China and delve into the modern innovations that continue to emerge from this cradle of civilization.

The abacus, a counting device that predates the modern calculator, is believed to have originated in ancient China. Developed during the Han Dynasty, this ingenious tool allowed the Chinese to perform complex calculations with remarkable efficiency. Even in today's digital age, the abacus remains an important educational tool, teaching children the fundamentals of arithmetic and fostering mental agility.

In the year 132 AD, the brilliant inventor Zhang Heng created the seismoscope, a groundbreaking device that could detect and predict earthquakes. This early seismograph consisted of a bronze vessel with eight dragon heads, each holding a ball in its mouth. When an earthquake occurred, the direction of the tremor would cause one of the dragon heads to release the ball, indicating the location of the seismic activity. Zhang Heng's invention was truly ahead of its time and laid the foundation for modern earthquake detection technology.

Long before the invention of mechanical clocks, the Chinese devised a simple yet effective timekeeping device known as the hourglass. Consisting of two glass bulbs connected by a narrow neck, this ancient instrument measured time based on the flow of sand from one bulb to the other. The hourglass played a crucial role in various aspects of Chinese society, from regulating imperial court proceedings to aiding maritime navigation.

Traditional Chinese Medicine is a holistic system of healing that has been practiced for thousands of years. Based on the principles of balancing yin and yang and promoting the flow of qi (life force), TCM encompasses various practices, including acupuncture, herbal medicine, and tai chi. Despite the advancements of modern medicine, TCM continues to gain recognition for its effectiveness in treating a wide range of ailments and promoting overall well-being.

China has witnessed remarkable advancements in modern technology, with one notable example being its high-speed rail network. The development of this extensive rail system has revolutionized transportation in China, connecting major cities and reducing travel times significantly. The country's commitment to innovation and infrastructure has propelled it to the forefront of high-speed rail technology, setting new standards for efficiency and sustainability.

China's e-commerce industry has experienced explosive growth in recent years, thanks in large part to the pioneering efforts of companies like Alibaba. This online retail giant, founded by Jack Ma, has revolutionized the way people shop and conduct business in China and beyond. The success of Alibaba has paved the way for countless other innovative e-commerce platforms, creating a thriving digital economy that continues to shape the global retail landscape.

China's rich history of inventions is a testament to the ingenuity and creativity of its people. From ancient tools like the abacus and hourglass to modern innovations in high-speed rail and e-commerce, China continues to inspire the world with its technological advancements. As we uncover new tales of China's inventions, we gain a deeper appreciation for the ancient wisdom that informs these breakthroughs and the enduring legacy of innovation that defines this remarkable nation.

New Invention

Chan Sui Ki (La Salle) College, Wong, Tsz Hin – 16

China has created unprecedented innovations that have transformed the world. We will dig deeper into China's high-speed rail, Alipay, Taobao, bike sharing. By examining the key features and benefits of each innovation, we are going to understand their transformation in transport, finance, e-commerce and urban mobility.

China's high-speed rail: changing connectivity and efficiency

China's high-speed rail (HSR) network has revolutionized transportation by delivering unprecedented speed, safety and comfort. With a 40,000 km network, China has the largest and most comprehensive HSR network. This innovation has transformed transportation by reducing travel times and connecting cities and remote areas

An advantage of high-speed rail in China is a significant reduction in commuting. For example, the Beijing-Shanghai line, which takes 10 hours by conventional train, can now be completed in just four-and-a-half hours. This dramatic reduction commuting has resulted in increased productivity, improved social inclusion and a boost to the regional economy.

Moreover, high-speed rail has increased the accessibility by connecting isolated areas. Improved connectivity has also boosted economic growth, attracting investment, creating job opportunities.

The another advantage of China's high-speed rail is to encourage other countries to invest in similar projects. Countries like Japan, the USA and many European countries have noticed the economic and social benefits of HSR and started to develop their own high-speed railway system.

Alipay: Transforming the Financial Industry and Empowering the Individuals

Alipay, developed by Alibaba Group, has revolutionized the financial services in China by providing a secure and convenient digital payment platform. With more than twelve billion users, Alipay has changed the way individuals and businesses conducting financial transactions, reducing their reliance on cash and credit card.

One advantage of Alipay is its mobility, which allows users to scan QR codes for transactions. This payment method not only made payments easier but also increased the efficiency in financial transactions.

Alipay's success has also advanced financial inclusion by providing financial services to individuals who are underserved by the traditional banking system. Alipay allows individuals to open digital wallets, pay bills, access financial products and services, regardless of location or income. This has enabled efficient economic transaction.

Additionally, Alipay's success has impacted the global financial system and spurred the adoption of digital payment systems. Companies like Apple Pay and Google Pay have added QR code-based payment systems influenced by Alipay's innovative approach. This convergence has accelerated the global transition to cashless transactions and made it more efficient, secure around the world

Taobao: Empowering entrepreneurs and transforming e-commerce

Taobao, an online marketplace, has become a tower of China's e-commerce industry, offering a wide range of products and services. The platform's user-friendly interface, competitive pricing and inclusive business model have changed the traditional trading methods.

One of the main advantages of Taobao is its inclusiveness, providing small businesses and individuals with the possibility to start their online stores without spending a lot of money. This has stimulated business opportunities, and boosted economic growth. Taobao has democratized e-commerce, allowing low-income individuals to contact more customers.

In addition, Taobao's success has influenced global retail trends and consumer behaviour. The rise of social e-commerce, where consumers rely on recommendations and reviews on social networks. This shift towards social e-commerce has transformed how businesses interact with customer and make purchasing decisions.

Additionally, Taobao's extensive logistics network has improved delivery, ensuring timely and reliable delivery. This has boosted e-commerce growth in China.

Bike sharing: Redefining urban mobility and promoting sustainability

China's bike-sharing has redefined urban mobility. Companies like Mobike and Ofo have introduced bike-sharing systems that allow users to rent and return bikes easily. This innovation has reduced carbon emissions and encouraged healthier lifestyles.

Additionally, bike sharing has helped reducing carbon emissions and alleviating air pollution. By encouraging citizens to choose bicycles over motorized vehicles for short journeys, bike-sharing programs have helped to reduce the environmental impact of greenhouse gases and this has implications in combating climate change and building sustainable cities.

Furthermore, bike-sharing programs have increased accessibility and improved last-mile connectivity. In suburbs areas, where public transportation doesn't provide direct access, bike sharing provides an efficient solution for short commutes. Users can rent a bike near the point of origin and return to their destination, providing the distinction between public parking and final destinations.

The success of China's bike-sharing systems has inspired cities around the world to implement similar initiatives. Bike-sharing have been launched in major cities in Europe, North America. By adopting bike-sharing programs, cities are embracing sustainable transportation solutions, improving public health.

Conclusion:

China's high-speed rail, Alipay, Taobao, and bike-sharing have not only transformed industries domestically but globally. The benefits of these findings are far-reaching. China's technological advances have led other countries to invest in similar projects. Learning lessons from these projects is essential to finding sustainable solutions to global challenges and diversifying projects in the future. It is important to acknowledge the impact of China's technological innovation, as it has touched the global financial system, democratized e-commerce and promoted a better lifestyle.

Going forward, it is important to recognize the potential of new technologies in solving global challenges. By learning from China's reform process, we can develop sustainable solutions that benefit societies, the economy and the environment. China's high-speed rail, Alipay, Taobao, and bike-sharing are shining examples of how innovation can change the world. Their continued growth will surely determine the future of businesses. The world needs to recognize the impact of China's technological innovations. China has made incredible strides in technological innovation, affecting the changing economic systems and retail practices around the world.

An Exquisite Mind Stocked Up The National Trend

Chan Sui Ki (La Salle) College, Wong, Yik Chun – 17

Paper making, printing, gunpowder and the compass – the Four Great Inventions of Ancient China, may be the first idea that has fluxed to your mind when it comes to the creations in China. Tracing back through various dynasties in Ancient China, take a closer look onto papermaking, Cai Lun produced the first-ever viable paper from bark, rags, wheat stalks and other materials which was relatively cheap, light, thin, durable and more appropriate for brush writing. Instead of utilizing bamboo or wooden strips, papers produced by Cai Lun has revolutionized the way of writing. As a precursor, Cai Lun's papermaking technique has been widely spread to Europe in the 12th century and America in the 16th century, gradually circulating around the world. An exquisite mind from Cai Lun had contributed to a substantial amount of convenience in our daily lives through the prevalent use of papers in our daily lives, leaving the biggest credit by the global citizens and a momentous mark on the China's civilization.

While you may wonder if China's creation has brought to the end after the centuries, the answer is irrefutably no. Proceeding from the influential invention in the ancient China like papermaking skill from Cai Lun, the endless creativity of the Chinese has never been terminated, while ceaselessly exploring and outreaching their limits to mesmerize the world by innovations. Pony Ma, a China's National People's Congress (NPC) delegate as well as the chief executive of the China's tech giant Tencent, has revealed, "We have a new phrase called the 'New Four Great Inventions' in China, including high-speed railway, online shopping, mobile payment and sharing bikes". Truth be told, the above inventions were previously devised from other countries decades ago. But the claim of the 'New Four Inventions' in China has been construed to be valid, owing to a Beijing Foreign Studies University survey from May 2017. Amidst the survey, young people from 20 countries were interviewed to list the technology they wanted to bring back to their countries from China and the top answers are the above four features. Regarded as the 'New Four Great Inventions' in the foreigners' perspective, there must be several intriguing mysteries to be dived into behind the new tales of China's invention.

To commence with, online shopping should be the most prominent and representable among the four inventions in China, backed up by the worldwide renowned online shopping platform Taobao. Have you all attempted to purchase any appealing products that deeply captivated you and triumphantly brought back the handy loots from the convenient shopping platforms? Indeed, as a city dweller, we are somehow quite keen on something convenient like putting our favorites in the shopping carts and waiting for our hopes to come while remaining within doors. With the rising prevalence of the Internet, citizens gradually found the advantage of using online shopping platforms, catalyzing the paradigm shift of the shopping behavior of Chinese citizens into the more conducive online shopping mode. This phenomenon has probably encapsulated why the viral shopping platforms Taobao was coined.

Taobao, boasted by the largest Chinese business-to-business e-commerce company Alibaba, has been established by Jack Ma in 2003. Being one of the crucial engines of the online retailing industry in China, Taobao renders an online transactional platform for the companies and individual sellers to establish their online shopping stores, targeting the customers throughout China. The giant Taobao has even beaten eBay in 2003 to declare its dominance in the online retailing market. That is certainly not a coincidence after all. Providing multifarious spotlights and features, Taobao would be the number 1 choice when it comes to online shopping, prompting it to stand out from an array of online shopping platforms and be one of the most successful inventions.

It is not uncommon to discover that the stuff you desired or needed are not available in physical shops nearby. Needless to feel the frustration, Taobao would be the idea that will first pop out in your mind. Regardless of how scarce your stuff is, Taobao never fails to provide you with an array of products you required. Rendering a wide-ranging selection of products, from clothing, electrical appliances and cosmetics to even niche items, this versatile platform could never cease to satisfy you with the most tailored shopping experience.

In accordance to a research conducted in Uppsala University, for the respondents who think physical stores cannot provide the products they need, over three fifths of them choose shopping online due to the fact that Taobao can provide various products to everywhere in China through Internet. Even for those expressing that they can buy Taobao's products in the physical stores, there are still implausibly 59% of them prefer to purchase on Taobao. It is evident that apart from being unable to buy their items in physical stores, there are more desirable traits provided by Taobao making it outshine traditional shopping methods.

One of the most effective weapons of Taobao is the competitive prices. Once you have searched any items on Taobao, your first thought must be about the prices. Deeply mesmerized by how economical the items are, you will just simply put them in your shopping carts and go on purchasing without prudent hesitations. This is how Taobao has been captivating us to online shopping. Offering products with a relatively cheaper prices than in traditional retail stores, Taobao has gradually generated a win-win situation. While purchasing on Taobao, not only are the customers benefited by the cheaper prices of items, reducing their living expenditures, but the businesses could also turn to develop their online shopping platforms which requires minimal operating costs. Extending to the macro field, these all are immensely conducive to the local market. While the customers are doing comparison between multitudinous products to find the best deal, businesses are carrying out various tactics to strive competitiveness to be the best deal in the customers' perspective. This has been largely contributive to promoting market competitiveness, and hence its growth.

The invention of Taobao has achieved unprecedented success in recent China's development, acting as a catalyst in the online shopping market and the local economy. The Taobao company is committed to 'creating the world's preferred network of retailing'. In September 2023, about 1.03 billion people in China were actively shopping on their mobile phones. As the predominant shopping platforms in China, there are over 895 million active users in the same period. With the shocking figures, the invention of Taobao has been given the credit in light of its merits in promoting the economic development of China and the host of advantages catering to consumers and businesses.

Following the tremendous accomplishment of Taobao, other markets, that have much correlation with online shopping, have simultaneously flourished, gradually becoming more overarching and all-pervasive in our daily lives. Mobile payment is exactly the case in point. You can see Alipay, WeChat pay, to name a few. These are the prevalent mobile payment platforms that have diffused into our usual payment practices. Whenever you go out in China, the only must-bring is merely a smartphone. While a tourist on the restaurant was about to check the bill, the cashier had frowned and asked, "No WeChat?". The cashless phenomenon has been sprawling throughout distinct regions in China, which is patently reflected by the situation of being perceived as the "odd" one if mobile payments are not used. Perhaps in 30 years ago, China is cash-dominant. However, the invention of mobile payment platforms like Alipay has made an unparalleled transformation.

Still, convenience is one of the most indispensable factors when it comes to inventions, which have the common ultimate goal of comforting everyone's life and improving living qualities. This is undoubtedly fulfilled by Alipay and WeChat Pay. By providing a convenient and secure alternative to traditional cash or card-based transactions, mobile payments outshine them for having faster, easier and more efficient transactions, potentially fostering economic activities.

This is never limited to urban citizens. Without access to traditional banking services, Alipay and WeChat Pay allow individuals to blend into the digital economy regardless of their remoteness. For the rural citizens, once they got a smartphone, everything is under their control, never struggling to make payments, transfer money or access financial services.

It is also not uncommon to say mobile payment and online shopping are interrelated. Mobile payment methods such as Alipay and WeChat Pay are defaulted in online shopping platforms like Taobao. Integrating both convenient inventions is likely to build the way of seamless shop-and-pay experience, triggering the hyped enthusiasm in online shopping. This has significantly shaped the e-commerce market with a skyrocketing development.

With regards to accessibility, China's high-speed railway has been in the limelight. Boasting a geographical coverage of 9.6 million square kilometers, China occupies a quarter of Asia. It is hardly surprising that in the past decades, travelling across different parts of China was like an uphill battle. Predominantly relying on trains for long-distance transportation, Chinese citizens in the 20th century had inevitably ventured on an enervating journey while idling at the train in a daze for half a day before reaching the destination. Gladly, this plight had come to the end and the fantasy of many has come true.

The desire for developing the high-speed railway had been genuinely lit up after Deng Xiaoping, who was the paramount leader of China, visited the world's first high speed rail Shinkansen in Japan. Following the commencement of China's first high-speed rail lines in 2007, China has been developing at a gallop where the world's largest high-speed rail network with a total operating length of 40000 kilometers are possessed. But how has this highly anticipated infrastructure intrinsically assisted the locals?

Simply look at the biggest highlight of such creation — 'high speed'. The high-speed trains in China are specialized to carry passengers in an extremely high speed, reaching a maximum of 350 km/h. This indeed considerably minimizes the duration despite a lengthy route to your destination. How impressive a high-speed train is well illustrated by the distant journey from Beijing to Shanghai with a dispersion of 1200 km. Just imagine how long a conventional train will take along the journey. It is in total around 12 hours. For the high-speed train, it merely spent 4.5 hours to complete the entire journey, requiring less than 40% of the conventional one. You might wonder if the high-speed railway network is still far from being well-established and extensive enough throughout the shortly 10-year development. However, the results come as a surprise.

Under the unimaginably progressive development of high-speed trains, China has been possessing one of the most extensive high-speed railway networks globally, interspersed with all major cities across the countries with a total track length of 37000 kilometers. In this way, almost all regions in major cities become highly accessible by high-speed trains. With the all-embracing high-speed railway network, it is just a piece of cake for citizens to travel throughout China, no longer being perplexed by the limited transportation penetration and intolerably long transport durations. Reaching every single edge in China is no longer a dream for us after the invention of high-speed rails in China.

Deflecting to the field of short-distance transportation, bikes are one of the popular options for a majority of us notable for their convenience and cost-free nature. While it may seem that bikes are merely handy stuff that can be easily possessed by anyone, it was not sufficiently desirable when you have to take out your own bike every time you go out, wasn't it? Here exactly brought up the notion of sharing bikes.

For the status quo in China, bikes are literally present everywhere. Being ubiquitously common, bikes are highly accessible for every citizen. Whether students are hurrying on their road to schools, workers are rushing to their workplaces, or anyone who need a mile-distance transportation, bikes are the options in point. Being readily available in urban areas where docking stations are located densely throughout cities, users can easily locate or unlock bikes by scanning the codes on them using mobile phones. This niche transaction process could be done in a blink of an eye. Bestowing the flexibility of picking up and dropping off the bikes, users can travel whenever they need, being able to make adaptations on their own plans and routines.

Meanwhile, urban sustainable development is partly supported by the implementation of sharing bikes in China. While motorized transport has been dominant, carbon emission has never left the chat in China, unceasingly producing a spate of environmental concerns. For this, sharing bikes proactively incentivize citizens to utilize bikes for transportation in light of their pervasiveness. As an environmentally friendly tactic, sharing bikes undoubtedly foster sustainable development for China.

China's sharing economy maintained steady growth last year despite multiple headwinds, according to a report released by the State Information Center. Transactions within the country's sharing economy reached about 3.83 trillion yuan (555.54 billion U.S. dollars) in 2022, up 3.9 percent year on year, said the report. As one of the main contributors of the sharing economy, the flourish of sharing bikes market has accompanied with the growth of sharing economy in China. The invention of sharing bikes in China is never limited to benefiting citizens by its convenience, but also acts as a momentum to local economy in the macro field.

Not saying that the 'New Four Great Inventions' in China are free of any shortcomings, yet the shimmering spotlights have shrouded the niche dark spots. It is not worth overlooking a multitude of conduciveness incurred from the inventions. As I mentioned, it is never a coincidence that the inventions that have stirred up the far-reaching effects on citizen's daily lives have popped out in a sudden. It must be created by an exquisite and innovative mind in order to enhance our living quality and stock up the national trend.

As Thomas Carlyle said, "every noble work is at first impossible". Entrepreneurs, such as Jack Ma, were never easy on their road to success. Therefore, never stop your exquisite mind, keep venturing on the road of invention. Perhaps one day your dreams will come true and you will be the role model in China. The tale of China's invention has been inheriting from strength to strength, being an epic in China's history.

New Tales of China's Inventions

CUHK FAA Thomas Cheung Secondary School, Chan, Pak Ho AI – 15

All around China, many Chinese people debate over a topic. “Is the past or the future’s technology better?” Some people say that the past is more important as its technology is still very relevant today, some people say that the future is more important because its technology improvises over time and gets more impactful. But has anyone ever thought that both might be equal? In my opinion, I think both different times have very important technology and are on the same level. In fact, I want to talk about the past’s inventions’ creation background and impact it has back then and as of the present day. Then I'd like to talk about what inventions could potentially appear in the modern future and the potential impacts.

To start, I'd like to talk about one of the two past inventions first, and that would be the invention of paper. During the Shang and Zhou dynasties of ancient China, people could only use bamboo, bones and shells to write documents, which were always bothersome due to the material’s heavy weight. Some tried using silk as well, but it was normally too expensive to be considered. Then during the Han dynasty, Chinese court official Cai Lun invented the method of papermaking using rags of cloth, barks of trees, remnants of hemp and fishing nets. Cai Lun submitted the process to the emperor in the first year of Yuan–Hsing and received praise for his work. From this time, paper has been widely used and is universally called paper of Marquis Tshai. From then forward, the use of paper increased greatly. It would be used to padding and wrapping bronze mirrors. Padding doubled as both protection for the object as well as the user in cases where poisonous "medicine" got involved. Although paper was used for writing by the 3rd century Tsein 1985, paper continued to be used for wrapping and other purposes.

With the invention of paper, it has become the one of the most impactful moments to happen to Chinese history, as strong reading culture seems to have developed quickly after its introduction. Textual culture seems to have been more developed in the south by the early 5th century, with individuals owning collections of several thousand scrolls. In the north an entire palace collection might have been only a few thousand scrolls in total. Soon enough, China became the world leader in book production. With the gradual spread of woodblock printing from the late Tang and Song further boosted their lead ahead of the rest of the world. European took notice of China’s mass from paper and had their own papermaking process, being more advanced due to Europeans already developing to mechanical technology by the time. Nowadays in the 20th Century, papermaking is usually done in the European’s mechanical way, China’s papermaking technique now left in the dust. But despite the evolution, China’s papermaking technique will always be remembered as the process that started all the documents in the world.

Now that I’m finished with paper, the next invention I’d like to talk about is fireworks. I believe fireworks are distinct enough from paper to be another invention from China worth talking about. Did you know that fireworks originally came from something that Gunpowder was always used during wars and violence until the Song Dynasty. The earliest form of fireworks, people threw bamboo stems into a fire to produce an explosion with a loud sound. In later times, gunpowder packed into small containers was used to mimic the sounds of burning bamboo. Exploding bamboo stems and gunpowder firecrackers were interchangeably known as baozhu or baogan. It was during the Song dynasty that people manufactured the first firecrackers comprising tubes made from rolled sheets of paper containing gunpowder and a fuse. And so on and so forth, people would keep making new ways to remodel firecrackers, whether it’d be the base design, sound design or flare design. To the current day, fireworks are frequently used to celebrate annual holidays such as New Years, spreading joy from country to country.

I think I’ve finished with talking about inventions from the past and their summaries. Now it’s time to move onto future inventions and their possibilities, to quote Zhuangzi, the famous Chinese philosopher, ‘Human life

is limited, but knowledge is limitless. To drive the limited in pursuit of the limitless is fatal; and to presume that one really knows is fatal indeed!’ The first invention that comes into my mind would be self-driving cars. Electricity has been evolving through inventions a lot, one of the most notable examples would be electric cars, as they are very advanced and environmentally healthy. So, I thought that electric cars could soon advance to gain the ability of self-driving, which would be beneficial in many ways. The biggest potential for self-driving cars is to discover undiscovered land, as the cars would mostly be independent and function nicely as a land-seeking drone. The other potential is that self-driving cars could help people in their normal lives, for when someone has a lot to do, the vehicle can drive by itself as the person keeps doing their business in the car without a worry of being late or getting in accidents. Another benefit for people’s lives is that it could help disabled people gain access to vehicular transport, as some disabled people would not be able to use an average car’s steering wheel or gas pedal.

Another invention that comes into my thoughts would be xenotransplantation. While it sounds way more complicated compared to self-driving cars, I think this would be more impactful than it. Xenotransplantation is the transportation of an animal’s organs or tissues from an animal source towards a human recipient. Xenotransplantation has existed but it has not been fully developed yet, as it still has many risks. As of now, xenotransplantation mainly uses pig organs or tissues to transfer to humans in need, while some are successful, there are still some cases which end up leading to failure and bans on xenotransplantation in some countries. With scientists already knowing to change the genetics of the pigs that the organs will be harvested from, I find it very likely for the genetic modifications being more developed and less risky in the future, leading xenotransplantation to be able to be unbanned on more countries. I think xenotransplantation will be very important because just like many surgery or medical related inventions, it can really give people who are in need a second chance in life, especially when there are no donated organs available. Just imagine the smiles of relief that the world can see more with this invention.

Those are all the points about the importance of past inventions and future inventions I'd like to make. I will always believe that both past and future inventions will always be equally as important, and I like to see past inventions as the old and wise teacher that educates the young, and future inventors that take the steps of their teachers and evolve. So, whenever you encounter a similar debate, think of an important past invention and an impactful future invention and it will all balance out as long as you decide to think it through.

My Encounter with Great Chinese Inventors

CUHK FAA Thomas Cheung Secondary School, Chen, Daokang – 17

China is one of the four ancient civilizations in the world, with a long history of 5000 years. As the only existing ancient civilization, China has a large number of extremely sophisticated and influential inventions, including Zhang Heng's seismograph and Cai Lun's papermaking technique in ancient times. In modern times, there are also some groundbreaking innovations like artemisinin, an antibiotic invented by Tu Youyou and optical fibers invented by Gao Kun. These two inventions have made great contributions to the world in the fields of medicine and communication technology respectively. These inventions are the walnuts and pears the inventors plant for human race. It can be said that without these inventions, there would be no better world today. These inventions have made tremendous contributions to society at that time and have benefited the humanity. Why can our outstanding scientists think of such wonderful inventions? What kinds of spiritual support or inspiration enable them to come up with inventions that shocked the world? Let's explore the truth.

Thousands of years ago, China already had many outstanding scientists, such as Zhang Heng and Cai Lun. They are all inventors who made outstanding contributions to ancient China. Zhang Heng, who invented the world's earliest seismograph, was a famous scientist in the Han Dynasty, but his path to this invention was not a smooth sailing. He had to tolerate this distrust and mockery of the people around him as well as overcame lots of obstacles before he could finally achieve success. Before inventing the seismograph, Zhang Heng was not valued by the emperor and was only an official responsible for transmitting documents. However, even though his official position was not high, he still cared about his country and people. As part of his duty, he often received news of earthquakes from various places of the country. Every earthquake always caused heavy casualties and put people in pain. The emperor's support could not help people in a timely manner. After learning this news, Zhang Heng felt very distressed. He began to think about how to help people affected by earthquakes. Therefore, the idea of inventing seismographs gradually emerged in his mind. He began to think about ways to predict the occurrence of earthquakes faster and more accurately so as to reduce the impacts of earthquakes as well as the number of casualties. When the idea of a seismograph first came to his mind, he began to manufacture it. When others heard of his idea of making a seismograph, they all thought he was only daydreaming. Who could create something that could predict earthquakes? In the eyes of the people at that time, this was an unfulfilled wish. Everyone was urging him to give up this useless dream as soon as possible. Zhang Heng ignored people's persuasion and continued to devote himself to inventing seismographs because he sincerely hopes that he could help people avoid the harm of earthquakes for the sake of the country and the people. However, people continued to mock him, thinking that he was not doing his job properly. People believed that Zhang Heng had a job and stable income, and therefore, he should be very satisfied. However, he always wanted to invent the seismograph even though people didn't understand his inner thoughts. Not knowing this invention will benefit society in the future, most people at that time laughed at his foolishness and persistence. . With Zhang Heng's unrelenting efforts, the seismograph was finally invented and predicted the occurrence of earthquakes precisely and accurately, allowing people to avoid the undesirable impacts of earthquakes. Zhang Heng's resolute personality and extraordinary spirit of exploration ultimately led him to success. He ignored the ridicule of others and focused on his own invention. No matter what others said of him, he still insisted on his idea of inventing the seismograph. In the end, Zhang Heng fulfilled his wish and made his dream come true, benefiting the country and the people.

Zhang Heng is not the only great inventor in the history of China. In the Han Dynasty, there was another outstanding inventor, Cai Lun. His invention is known as the the Four Greatest Inventions of ancient China, making people's lives more convenient for generations. His great invention is paper. Have you ever thought about what people used to write before paper appeared? Before the invention of paper, ancient Chinese people wrote on turtle shells and bamboo. People not only could not write a large amount of text on these things, but they are also very heavy, so moving books was a very difficult task. As an official beside the emperor, Cai Lun saw thousands of heavy bamboo slips that the emperor had to inspect every day and how difficult it was to transport them. Therefore, he thought of making paper. What is the lightest thing that can be written on? Cai Lun then visited the whole country in search of any materials that could be used for papermaking, no matter fishing nets, bark, or even rags. This process was very cumbersome, and everything went through many processes. However, in the end, he found out that they may not be suitable for papermaking. Under such unrelenting spirit, Cai Lun finally found the right material for papermaking and ultimately achieved his goal. The invention of paper has greatly facilitated people's lives, making writing more convenient. More importantly, it also left an extraordinary achievement in the history of invention in China.

The spirit of perseverance and exploration of these inventors has been passed down to generations for thousands of years. Nowadays, it still deeply influences everyone in China. In modern times, another great inventor Gao Kun

has also demonstrated this spirit of perseverance and exploration. Gao Kun was born in Shanghai in 1933 and was born into a relatively wealthy family. He initially studied at an international school in Shanghai. When he was 16 years old, he followed his family to live in Hong Kong. After spending his student life in Hong Kong, he started to work abroad. He first studied information and communications technology at a telecommunication company in the UK. At that time, communication mainly relied on transmission of information by using copper wires. Gao Kun felt that this method was too slow, so with the joint efforts of him and his team, he improved the efficiency of copper wire transmission by nearly 50. Even so, he was still not satisfied. He began to imagine faster communication methods that could enable people on the other side of the ocean to immediately receive information from the other end of the earth. Coincidentally, the laser industry was developing rapidly at that time, so Gao Kun began to envision using lasers to transmit information through glass that was even smaller than a strand of hair. In this way, the transmission of information can become faster and more effective. However, his idea was not accepted at first because glass companies at that time only made glass decorations and bottles, and no company would produce thin glass fibres used for transmitting information. Even though Gao Kun published a groundbreaking paper on optical fiber transmission, he did not receive any response as if his findings had sunk into the sea. Everyone thought he was crazy. How could there be glass as thin as a strand of hair? Nevertheless, Gao Kun is such a perseverant person. The more others thought it was impossible, the more he had to do it in person in order to show that he was right. He always insisted on his research on light brazing and constantly tried testing his new theories and improved his invention. Finally, four years later, a glass company produced glass that was as thin as a strand of hair. Upon learning this, Gao Kun was very excited, indicating that his research could be taken one step further and the possibility of transmitting information with optical fibers has greatly increased. In the end, communication through optical fibers was achieved with the untiring efforts of Gao Kun. After decades of research and exploration in the field of science and technology, Gao Kun was not afraid of starting his research over again even if it failed. Instead, he continued to study optical fibers repeatedly and hence finally achieve unprecedented success in information technology, which made way for the emergence of Internet and other applications, allowing people to live more convenient and enjoyable lives. It can be said that without Gao Kun, there would be no world with advanced technology. The information technology such as 5G network we use was invented with the development in the use of optical fibers. Gao Kun's invention has taken the world's technological development one step further.

Outstanding inventors like Zhang Heng, Cai Lun and Gao Kun not only have brought their outstanding inventions to future generations, but also passed on the spirit of persistent exploration to future generations, allowing us to still hear their stories, learn their spirit, as well as find the inspirations from their stories today. Their spirit of exploration and innovation is constantly influencing young people, inspiring them to create more new inventions. For example, Tiktok, which is a videostreaming platform founded by Zhang Yiming, enables people all over the world to share their short clips and watch videos. This platform makes our life more interesting, boost our creativity and widen our horizons. Mr Zhang successfully made Tiktok popular worldwide by overcoming all the challenges in the process of accomplishing his goals. Another example is Taobao. Taobao is an online trading platform founded by Jack Ma Yun. Thanks to the innovative online trading system, online transactions between retailers and customers have become more convenient and efficient as potential customers can buy things from all over the world anytime and anywhere. However, before the invention of Taobao, online trading platforms were not favored because most people regard such platform as not user-friendly and unsecured. However, Mr Ma did not give up. On the contrary, he regarded these negative comments as motivations for himself, telling himself not to give up and to stick to his dreams and goals. Finally, Taobao has made shopping no longer limited to traditional way but allows people to shop anytime, anywhere. This has greatly facilitated the shopping process, improved the shoppers' experience and hence raised their quality of lives. These two examples have shown that the spirit of exploration and perseverance has remained unchanged for thousands of years, successors of different generations have therefore inherited these invaluable qualities and created even more influential innovations. Eventually, these qualities will be brought forward to our upcoming generations. By allowing generations to see how the past elites faced failure, persisted in their efforts, and ultimately succeeded, the stories of our innovators have deeply influenced each of us, encouraging our innovators and inventors continue to explore the unknown and strive for excellence.

Looking into the future, the spirit of our Chinese inventors will constantly encourage us to be brave, adventurous and persistent. Just like for China's aerospace technology, with the efforts of every Chinese aerospace scientist, they are all making unprecedented achievements in terms of exploring the unknown space. In order to help people live a better life and make the country stronger, they make untiring efforts in doing research and investigations day and night, only to make more contributions to our country and make our country stronger and more prosperous. This is also what we have always said about inheritance. This spirit of exploration and perseverance has already incorporated into our culture, making us never give up. We believe that in the future of China, there will be more excellent scientists and inventors who will selflessly contribute to people's wellbeing and happiness, sacrificing their

time just to make people live a better life and make our country stronger. The spirit of exploration and perseverance of Zhang Heng and Gao Kun has been passed from generations to generations, leaving seeds for China's development.

The invaluable spirit demonstrated by our outstanding Chinese inventors is worth learning for each and every one of us. The spirit of exploration and perseverance demonstrated by Zhang Heng, Cai Lun and Gao Kun has benefited me a lot. As a high school student, I often encounter problems in my studies. Facing various problems, I always cannot cope with them. Sometimes I feel like giving up and not wanting to continue with my study, which is a very difficult challenge for me. However, whenever I think of inventors like Zhang Heng and Gao Kun and their unwavering spirit, I am encouraged and become enthusiastic about my study again. Our Chinese inventors have never given up in the face of thousands of failures, but rather as a part of the road to success. Without failures, successes cannot be achieved. They treated failures as a part of their successes and did not give up easily. Seeing that they inspire themselves with failures, I am also inspired to learn the spirit from their experience. Whenever I want to give up, I will think about Gao Kun's deeds when he invented the light drill. Since he never gave up on the difficult tasks of inventing optical fibers, why should we, who only need to learn, give up? Whenever I think of our great Chinese inventors, I am always inspired by their perseverance and bravery and wish I can explore my true self and talents, make contributions to my country and help everyone live ha

China's Incredibly Groundbreaking Inventions

CUHK FAA Thomas Cheung Secondary School, Tang, Wing Yan – 14

Are you familiar with China's contributions to global innovation? Chinese inventors are recognised for their game-changing creations that have significantly impacted the world. Notable examples of these groundbreaking inventions include papermaking, printing, gunpowder, and the compass. These innovations have revolutionized fields like communication, warfare, and navigation.

To begin with, China has been breaking new ground with its focus on technological advancement, positioning itself as a global leader in AI and robotics. We may soon witness the emergence of cutting-edge robotic systems, intelligent automation, and sophisticated AI applications across various industries.

I am particularly impressed with Chinese micro-nano technology. The nanocolloidal gold detection method stands out as a real-time detection technique. Compared with earlier methods, it offers rapid results, flexibility in testing locations, and requires less expertise from operators. It is exceptionally suitable for the post-pandemic era.

In terms of treatment, traditional antiviral drugs often suffer from poor stability, low bioavailability, and a high potential for drug resistance. However, antiviral medications enhanced with nanoformulation technology have shown noticeable improvements in stability, targeting, and bioavailability, representing a major step forward in medical treatment!

On the other hand, I have a strong preference for autonomous driving as an innovative technology. Autonomous driving can eliminate risks associated with human error and driver fatigue, potentially leading to a substantial reduction in traffic accident rates. Vehicle-to-vehicle communication and advanced perception systems are poised to enhance road safety by decreasing the likelihood of collisions and mishaps.

Furthermore, driverless vehicles have the potential to lower energy consumption and carbon emissions through the optimization of driving routes and the implementation of energy-efficient strategies. Additionally, the advancement of autonomous driving technology could accelerate the adoption and utilization of electric vehicles, thereby diminishing our reliance on fossil fuels.

All in all, China's vibrant culture, technological advancements, and growing economy create a fertile ground for inspiring new inventions and discoveries. The future holds endless possibilities, and it's exciting to imagine the contributions that Chinese inventors and innovators will make in shaping our world.

From Palace Servants to Unsung Innovators

HKCCCU Logos Academy, Liu, Yu Yui Ruby – 16

The invention of paper in the Eastern Han dynasty is a well-known tale among Chinese households. It goes something like this:

Imperial official Cai Lun was frustrated by the quality of writing material. Back in those days, one either had to write on smooth but expensive silk or heavy bamboo slips. Neither of these were very accessible or convenient, especially for commoners. Wishing to improve the efficiency of writing, he proposed a method to create a parchment with tree bark, fishing nets, and rags. This improvement in the papermaking method was a great step towards the recording and dissemination of information and knowledge in ancient China.

That is how the story is usually told. The mass production of cheap paper was a great step towards increased literacy and cultural power. Everyone knows that paper is a great invention, hence why it's listed among the four great inventions of ancient China. But what's often left out, either absent-mindedly or to make the story more suitable for children, is that Cai Lun was not just another run-of-the-mill bureaucrat. He was a eunuch.

What is the significance of this identity? It becomes quite interesting when you take a closer look at eunuchs in Chinese history as a whole. Historically, they were shunned by more "righteous" male officials, who often had conflicting interests with the eunuchs and held patriarchal views that discriminated against them. Cai Lun very impressively overcame this common stereotype. He also had access to resources and funding to support his innovations, and was incentivized to do so by the imperial family. According to historian Yu Huaqing, the positive contributions of eunuchs were rarely recorded in the historical canon written by officials. Even now, it is rare to see people be sympathetic towards eunuchs, let alone praise them.

However, there likely isn't any grand conspiracy trying to erase the efforts of eunuchs in Chinese history. Rather, it's more possible that their contributions to cultural and technological progress have been outshined by their less glorious reputation for scheming and corruption. Judgments towards historical eunuchs can be very inaccurate, especially considering the social norms at the time denied them a fair trial. As a matter of fact, Cai Lun's eunuch identity is rarely brought up, except in cases when he and Zheng He are paired together as examples of "the good ones" or to condemn him further for his behavior as an official.

Even the "good eunuchs" had a side that was rife with controversy. Cai Lun himself had dabbled in corruption, participating in a scheme that culminated in the execution of the mother of a royal and her son. Today, his wrongdoings are outshined by his undoubtedly significant inventions that left a great legacy. However, inventing paper didn't prevent his eventual coerced suicide when his crimes were revealed and new eunuchs fell into favor.

These new eunuchs, known as the Ten Attendants, receive a mention in one of the four classic Chinese novels. *The Romance of The Three Kingdoms* attributes the fall of the Eastern Han dynasty to the incompetence of the Huan and Ling emperors and, more relevantly, the Ten Attendants' misconduct and corruption in their posts. This background is crucial in understanding that there is a lesser-known tale of an invention whose origins can be traced back to this period. In particular, the attendants Zhang Rang and Bi Lan are the key figures.

Zhang Rang was a high-ranking official in the courts of Emperor Ling. He felt that the infrastructure of their capital, Luoyang, was in dire need of improvement — it was so expensive for the citizens to clean the streets by sprinkling, and the palace didn't even have running water! And so he ordered Bi Lan, a skilled craftsman and fellow eunuch, to build something called a *fan che*, what we now know as the chain pump. It could pump water, sand and earth upwards, improving the transportation of these resources and making access to them much more convenient. Bi Lan also made the *ke wu*, which were thin tubes that could transfer water from container to container until the volume was level in both, putting the siphon principle into practice nearly two-thousand years ago. Bi Lan's constructions brought much more than what was requested of him from Zhang Rang; not only did Luoyang have running water but in the years

to come, they would revolutionize China's irrigation system, improving productivity in the agricultural sector and living standards for peasants.

While this is only a highly simplified, semi-fictional reconstruction of events, it is true that one of the first records of the utilization of improved water transportation equipment was found in the late Eastern Han dynasty. While the exact origins of these inventions are still controversial among historians, certain authoritative sources such as the book *A History of China's Agricultural Science and Technology* attribute their invention or significant innovation to Bi Lan. It is greatly inspiring how a eunuch-bureaucrat at the time was able to construct such intricate devices by harnessing the principles of physics, and how his inventions improved the lives of not only the inhabitants of the capital but also many Chinese farmers in the centuries to come.

Seeing that the chain pump was still in use centuries later for irrigation, draining, supplying water and other engineering purposes, it proves to be quite a consequential invention, even if it doesn't have the lasting popularity Cai Lun's paper does. After all, it's much easier to explain the importance of paper than obscure ancient agricultural machinery. However, there was an interesting pattern in the sources recording the history of Eastern Han eunuchs.

Many Chinese biographies omitted the section about the construction of the *fán che* and the *ke wu*. They mostly describe Zhang Rang's crimes; how he accepted bribes and used his wealth and power to exempt himself from punishment, and how he persecuted just officials who dared to take a stand against him. Bi Lan's inventions are mentioned in passing as a part of Zhang Rang's tale, but in many biographies of Zhang there is no mention of Bi Lan. When it comes to information on these specific inventions, many materials simply refer to the inventors as "the ancient Chinese", without specifying identity or status. They claim that by creating such useful devices, the anonymous inventors brought prosperity and joy to the masses. This is great, but seems to contradict the narrative that eunuchs were only self-centered corrupt bureaucrats who paid no mind to the well-being of the common people. Another text took Bi Lan into account, but purported that specifically because Zhang Rang and Bi Lan were evil eunuchs, they could not have invented such technology. To be clear, there is a case to be made about who is the actual inventor of the *fán che* and the *ke wu*. However, it is questionable whether being a corrupt eunuch disqualifies one from being an inventor. As mentioned above, Cai Lun's track record wasn't all that clean either, and he was still mostly revered as a great man with a lasting legacy. Eunuch inventors aren't perfect, but at the same time, no one is.

The treatment this lesser-known tale of invention receives is very indicative of how eunuch inventors are viewed in the collective psyche. It brings to mind how when Cai Lun's eunuch identity is brought up, it is nearly always meant as a shocking revelation of a beloved inventor secretly being an evil villain. The truth is that Cai Lun's identity as a eunuch is very crucial in understanding him, but it should not lead to the assumption that he was inherently malevolent, or that it makes his contributions any less significant. The same can be said for Bi Lan. Eunuchs historically have been very creative, but the full picture is rarely shown.

Most inventions in Chinese history are by anonymous grassroot inventors or created by the collective population over a span of time. Eunuch inventors are outliers in that there is traceable evidence of their actions in the form of recorded history. These actions may be overlooked, or in some cases become a source of scrutiny. It's true that the Eastern Han dynasty was plagued by a corrupt bureaucracy, which eunuchs were a part of, but they deserve a fair evaluation in their legacy and contributions. Pitfalls such as excessive speculation and buying into aged stereotypes should not hinder proper assessment of the origins of important breakthroughs and the context behind their invention. Whether the eunuchs fit the stereotypes or not, it does not take away from the unquestionably positive impact of their inventions. Being more aware of the inventors behind the inventions also allows further insight to be made regarding the social climate of the time and how innovation was incentivized for eunuchs. Perhaps most importantly, it is one step closer to a new, more impartial representation of these unsung inventors.

It is spring in the Eastern Han dynasty. Cai Lun finds the best craftsmen in his department to create a material for writing that is both cheap and convenient so they can offer it to the emperor. It is spring in the Eastern Han dynasty. Zhang Rang thinks of his colleague Bi Lan as he checks the official ledger. They likely did not think about what would happen two thousand years later. Most people do not think about them a lot.

Womanese – ‘a glimpse into Womanese from the perspective of a woman’

Hong Kong Taoist Association Tang Hin Memorial Secondary School, Chan, Man Ching – 15

Womanese – ‘a glimpse into Womanese from the perspective of a woman’

[1853, Jiangyong County, Yongzhou, Hunan Province, the Taiping Heavenly Kingdom]

Since I was small, my mother has been teaching me Womanese, characters which are used only by women. She told me that this type of character was created by an imperial concubine, Yuxiu Hu, in Song dynasty to express her sufferings in the palace towards her mother and friends without being discovered. However, there are also other stories about the origin of Womanese. Some said that it was created by the intelligent nine-pound girl and others said that a girl called Pan Qiao created it to seek help from her friend when she was kidnapped.

Even though Womanese evolved from traditional characters, to me, they look quite different from the traditional ones. I once read my brother's book by chance. Although I could not understand the traditional characters, the most obvious difference between them and Womanese I could tell was that the former mostly consisted of straight lines and squares, while the latter was mainly made up of curves, dots, and sometimes circles.

Womanese is ubiquitous in our lives. Despite being characters, it does not only appear on papers and books but also paper fans, kerchieves and needlework. Emphasizing aesthetic beauty, it often comes with decoration, such as patterns on the four corners of paper, painting of flowers and birds on paper fans and embroidery on kerchieves and clothes. Together with the inclined and slender characters with delicate, graceful strokes and a balance of strength and softness, the exquisite handicrafts can always draw my attention.

I used to think that Womanese was a tool for confidential communication between women. From ancient times, inferiority of women in the patriarchal society has deprived us of opportunities to study. Womanese was perhaps invented to confront the social injustice inwardly. Well, this is partially correct. In fact, Womanese provides a way for us to express our feelings through words. Besides being written on paper and books, Womanese is also sung by every one of us. Rural women may not know how to write it but almost all of them are able to sing a spontaneous verse of Womanese songs. Thus, Womanese isn't really a secret, but men obviously don't pay any attention to it. My father once told me that it was just another humdrum entertainment of women, that was when I realized how our treasure is underappreciated by men.

That being said, Womanese is not just a way for communication or so-called entertainment. It surely is of paramount importance to us. We use it to record and pass on household issues, including birthdays of family members, ritual sacrifice, marriage and mourning. Also, Womanese is used to narrate historical facts, like the origin of clans and our own memoirs. Besides, it facilitates the relationships between relatives and peers. Inviting or comforting others, expressing gratitude and discussing family education are common themes in letters written in Womanese. Sometimes, classical stories written in traditional characters and folktales are translated or recorded in Womanese, and the main characters of these stories are mostly powerful females so as to encourage women's liberation, self-determination in marriage and gender equality.

The most important thing is that Womanese empowers us to convey our innermost emotions. It has become our only way to pour out grievances and complain about social unfairness. Despite learning Womanese at a very young age, I did not fully understand what Womanese really meant to women when I was young. But after I got married, the death of my parents, physical and mental abuse that I suffered in my husband's family provoked my thoughts about the existence of Womanese. At that very moment, I abruptly realized that these inconspicuous characters have been bearing the wails of anguish of women for years. We write Womanese to make silent protest against all the injustice we have experienced. Womanese has become the only way for us to release our strong emotions in this oppressive society and to 'voice out' our misfortune.

Sometimes, I would ponder whether Womanese is merely a product produced in our compromise towards the dreadful reality or an invention filled with hope and determination.

The Dujiangyan Irrigation System – How it has made Chengdu the ‘Land of Abundance’

Hong Kong Taoist Association Tang Hin Memorial Secondary School, Huang, Tin Shing – 15

Located on the Minjiang River in the Sichuan Province, west of the Chengdu plain, the Dujiangyan Irrigation System was first built in 256 BC under the Warring State Qin and is still in use today. It is honored as the 'Treasure of Sichuan', which still plays a crucial role in draining off floodwater, irrigating farms and providing water resources for more than 50 cities in the province. In addition to monitoring the water flow, the Dujiangyan Irrigation System has helped make the Chengdu Plain rich in agriculture, helping it earn its reputation as the “Land of Abundance.”

During the Warring States period, people who lived in the area of the Min River were plagued by annual flooding. Li Bing, a local official and engineer of the Sichuan Province, investigated the problem and discovered that the river was swelled by fast-flowing spring meltwater from the local mountains. The influx of water would overwhelm the banks of the river when it reached flatland. One solution would have been to build a dam, but the waterway had to be kept open for military vessels to supply troops on the frontier. Hence, an artificial levee was constructed to redirect a portion of the river's flow and then to cut a channel through Mount Yulei to discharge the excess water upon the dry Chengdu Plain beyond. The construction of a water-diversion levee resembling a fish's mouth took four years to complete. After eight years of work, a 20-meter-wide channel had been gouged through the mountain.

The irrigation system consists of three main constructions, including the Fish Mouth Levee, the Flying Sand Weir, and the Bottle-Neck Channel. They work in harmony with one another to ensure against flooding and keep the fields well supplied with water. The key part of the construction, the Fish Mouth Levee, is named for its conical head that is said to resemble the mouth of a fish. It is an artificial levee that divides the water into inner and outer streams. The inner stream is deep and narrow, while the outer stream is relatively shallow but wide. This special structure ensures that the inner stream carries approximately 60% of the river's flow into the irrigation system during dry season. While during flood, this amount decreases to 40% to protect the people from flooding. The outer stream drains away the rest, flushing out much of the silt and sediment.

The Flying Sand Weir has a 200-meter-wide opening that connects the inner and outer streams. This ensures against flooding by allowing the natural swirling flow of the water to drain out excess water from the inner to the outer stream. The swirl also drains out silt and sediment that failed to go into the outer stream. A modern reinforced concrete weir has replaced the original weighted bamboo baskets.

The Bottle-Neck Channel, which was gouged through the mountain, is the final part of the system. The channel distributes the water to the farmlands in the Chengdu Plain, whilst the narrow entrance, that gives it its name, works as a check gate, creating the whirlpool flow that carries away the excess water over the Flying Sand Fence, to ensure against flooding.

After the system was finished, no more floods occurred. The irrigation made Sichuan the most productive agricultural region in China for a time. The construction is also credited with giving the people of the region a laid-back attitude to life, by eliminating disaster and ensuring a regular and bountiful harvest, it left them with plenty of free time.

Unfortunately, the Dujiangyan Irrigation System (DIS) has been wrecked several times due to war and natural disasters. A few examples are as follows: The DIS was destroyed during the war when Mongolia conquered China in the 13th century and during the Sichuan War when the Qing Dynasty conquered the Ming in the mid-17th century. Surprisingly, however, although the irrigation system has been wrecked on multiple occasions it has found its way to recover quickly because of its simplistic architecture and design. Originally, the levee of the Dujiangyan Irrigation System was built with bamboo cages filled with cobblestones. The simplicity of the design and materials enabled engineers to replace or remove issue spots with ease.

During the modern period, starting from 1940, the Chinese have been using modern research and technology to modify the irrigation system to make it more lasting. One of the few modifications the Chinese made to it during this time was in 1962 when the government decided to line the inner river with concrete. The goal was to extend the irrigation project so that the main canals reached nearby terraced land that produced little rice production due to the limited availability of water. To distribute water to these lands, the government installed multiple diversion points along the main canal during the 1950s and early 1960s. The improvement of the DIS substantially increased irrigation water availability, but it still wasn't enough to further expand. Thus, in order to keep the Dujiangyan Irrigation System up to date, scientists and engineers have and continue to conduct experiments on the system. In

fact, The second generation of the Dujiangyan Irrigation project, named Zipingpu was finished just 13 years ago in 2006. The current model of the Dujiangyan Irrigation System is considered a hydraulic model. With this model of irrigation, the total area irrigated has increased 2.2 times. Through all this research and meddling, the construction and reconstruction of the Dujiangyan Irrigation system has been able to withstand multiple events including natural disasters like the 2008 Sichuan earthquake.

Last but not least, the Dujiangyan Irrigation System has a rich history of evolution and modification which has enabled it to last centuries. It has been instrumental in making Chengdu an economic center and has brought water to arid regions, thus creating fields of rich cultivation where there wasn't before. More than anything, unlike other dam projects, the system did not displace the villages living around the dam site.

In addition, the Dujiangyan Irrigation System is significant because it has progressed with the land while maintaining its original function. Even to this day it continues to contribute to the irrigation area and irrigates at least 68 hectares of water. Due to its longevity, the Dujiangyan Irrigation System has become a global case study of hydraulic engineering that has continually exhibited a level of harmony between man and nature. In 2000, the Dujiangyan Irrigation System was deemed a World Heritage Site by UNESCO and scientists around the world admire this irrigation project because Dujiangyan allows water to flow the dam naturally, enabling humans and nature to co-exist peacefully. Furthermore, although modern technology and tools have vastly improved since ancient times, the methods used to build the Dujiangyan Irrigation System continue to be a very valuable reference in modern water diversion and irrigation projects.

Despite being one of the oldest and best-designed systems, many people around the world do not know the Dujiangyan Irrigation System. It is believed that there should be more celebration and conversation surrounding this remarkable project which has lasted many lifetimes.

The Saviour? Or the Destroyer of Worlds? How Gunpowder Rewrote the History of Mankind

Hong Kong Taoist Association Tang Hin Memorial Secondary School, Lee, Sum Yin – 15

China, a country rich in culture and history, has a keen impact on the innovations that the world has made. From ancient times to the present, China has made a huge contribution in various fields, including technology, science, and engineering. The four great inventions of ancient China prompted the development of Chinese society, thus substantially revolutionizing the whole world. Among them, the accidental invention of gunpowder in the Han Dynasty remains one of the most significant contributions to human development. Originally sought as an elixir of life by Chinese alchemists, the discovery of gunpowder, a mixture of saltpetre and sulphur, which are chemical substances, had transformative impacts on the world. There has been plenty of controversy regarding the use of gunpowder and whether individuals should minimize the use of it or take maximum advantage of it. There is no doubt that gunpowder brought fatal consequences that continue to haunt people. It is important to explore the impact of gunpowder in the realms of warfare, society, and ecology to get a full insight into the pros and cons of gunpowder so that the need for responsible usage can be emphasized.

The invention of gunpowder has revolutionized the warfare system. In ancient times, wars were fought on a small scale; soldiers used swords, shields, and simple mechanics. Gunpowder led to the development of different weapons, including firearms, cannons, and bombs. It gave rise to new war tactics, changing the dynamics of war and influencing the outcome of countless conflicts. For example, the famous Southern Song General, Wei Sheng, created a chariot-phalanx by putting together chariots loaded with firearms and commanding soldiers to cast a variety of firearms from the chariots in an attack on the Jin troops. They won many battles against the Jin. The ability to produce firearms in mass and train soldiers with armaments also gave rise to powerful empires and enabled them to take control over vast territories. The transformation of warfare brought by gunpowder played an indispensable role in shaping the political landscape of nations worldwide.

Do you know about the beautiful fireworks we see today in amusement parks or festival celebrations? They are made from gunpowder, too. Gunpowder has had reminiscent repercussions on different cultures. The spread of gunpowder facilitated cultural exchange and integration of values among various civilizations. The Silk Road and other major cultural movements have made other countries from across the world benefit from this extraordinary invention. For example, the invention of fireworks became a symbol of celebration in many cultures—the exchange of knowledge and ideas associated with gunpowder propelled progress, enriching human civilization.

Gunpowder also has a groundbreaking impact on ecological fields. In the past, a longer period was needed for humans to explore new territories and exploit resources. However, these challenges became feasible with the aid of gunpowder. Inventions like TNT and other explosives facilitated the discovery of uncharted lands and enhanced transportation networks. The construction of railways, tunnels, and canals accelerated the exploitation of natural resources. New trade routes, for example, the Suez Canal, were opened. This helped foster economic growth and facilitate the movement of goods and services. Not to mention that the use of explosives helped clear land for cultivation, making uncultivable areas possible to become cultivated. This led to an increase in food production and growing populations.

Additionally, the use of gunpowder in pest control improved farming practices, leading to much better food security. Moreover, gunpowder played a crucial role in the development of early firefighting techniques. Protection of lives and property has significantly improved thanks to gunpowder.

It is essential to note that the devastating consequences of the use of gunpowder cannot be ignored. The scale and intensity of violence and destruction escalated throughout the years, leading to higher casualties and suffering among soldiers and civilians. Automatic guns cause severe injuries and death,

while grenades cause physical harm and psychological trauma. These resulted in catastrophic population losses. The horrors of trench warfare during World War I and the massacres during World War II proved the destructive power of gunpowder-based firearms.

Moreover, the use of gunpowder scrapes the uniqueness of certain cultures. Because of the use of firearms, many indigenous clans in Africa, America, and Oceania were gone in the blink of an eye. Others slowly adapted to the technological differences and began to accept the use of firearms. This reduces the diversity of different cultures. Not to mention that gunpowder distorted the representation of cultures, perpetuating stereotypes and prejudice. For example, since the 9/11 attack in New York, Muslims have been repeatedly described as 'Terrorists wearing a black gown'. These unnecessary biases deeply affected the Muslim community, creating fear, discrimination, and distrust.

Gunpowder also pollutes natural resources and the environment, such as the air, water, and soil. The manufacturing and use of gunpowder release harmful pollutants into the air, contributing to air pollution and climate change. Blast fishing is a destructive fishing method using explosives to stun or kill large amounts of fish. This seriously affects marine life, destroying marine habitats and causing a decline in fish species and quantity. Gunpowder combustion can generate various byproducts, including polycyclic aromatic hydrocarbons (PAHs), which are toxic organic compounds that accumulate in soil. These pollutants have the potential to harm soil microorganisms, inhibit plant growth, and pose risks to human and animal health. Gunpowder endangered and threatened the biodiversity on Earth and the balance of the ecosystem. It might pose a threat and increase the uncertainties of humanity.

Despite its positive impact on various fields, gunpowder has undeniably proven to be a destructive force throughout history. Its introduction has caused unprecedented levels of suffering, whether militarily, culturally, or environmentally. It is crucial to approach the use of gunpowder with caution and responsibility, as well as to consider alternative approaches to conflict resolution and preserve cultural heritage and the environment. Striking a balance between utilizing its potential for progress and lessening its negative consequences will be critical in shaping a peaceful, diverse, and eco-friendly future.

The Chinese Treasure of Invention Art

Hong Kong Taoist Association Tang Hin Memorial Secondary School, Tan, Kai Yuet – 15

When it comes to the famous Chinese invention art in various parts of China, people may think of the meticulously crafted Southern Song official kilns in Hangzhou, or mention the exquisite Peking Opera art in Beijing, or admire the unique shadow puppetry in Liaoning. The above are all ancient crafts that have gradually become legendary legacies for appreciation and reminiscence in the long river of historical circulation. Speaking of Chinese inventions that are still with us in our daily life and can be seen in every household in this rapidly changing era, the beautiful scenario that pops up in my mind is often not directly related to the bustling performing arts, nor is it limited to the rare antiques made by ancient craftsmen, but something that originates from ancient times and still wins people's heart today, which is traditional Chinese art, blue and white porcelain. It blooms everywhere in this era of changing trends, to the extent that its presence cannot be missed in most bustling commercial streets.

Walking into Hollywood Road in Hong Kong, you can see various cultural relics stretching down the street like a long mountain road. The name of the street sounds very Western, but upon closer inspection, one realizes that every corner of the street is filled with precious shops that exude Chinese classical charm. Shuttling through such a street, we can use our pupils to truly listen to each cultural relic that witnesses the changes of the times telling its own story.

A few mahogany cabinets were put together, with a variety of goods laid on top, and a small stall was built. Several blue and white porcelain vases were squeezed together, arranged in an uneven manner, as if they were casually thrown into the debris. They were in the midst of a crowded and chaotic backdrop, yet their dainty and peaceful posture could never go unnoticed to the passers-by. The color scheme that makes up the bottle pattern is only blue and white, but it does not detract from its elegance and nobility at all. Against the one-colour blue, the porcelain body is white with a bluish tint, where its white is clear and flawless, and its flower patterns are crystal without turbidity. The meticulous and vivid brushstrokes showcase a collection of spiritual charm styles one by one through the use of patterns. On the vases, there are neat ancient beauties playing strings to sing music, as well as curved and elongated stripes that create a delightful and interesting Chinese totem, woven into a blue and white reflection. Blue and white porcelain is like a witness to the ever-changing and turbulent history from beginning to end, strolling through the poetry and rhyme of the Tang and Song dynasties, striding along the fiery chariots of the Yuan and Ming dynasties, and quietly preserving the delicate beauty of classical culture amidst the chaotic and disastrous wars. Just like today, surrounded by the cries of vendors and the bustle of crowds, it still stands in tranquility in such a new era, using blue and white carvings to depict the peaceful times of dynasties and the innocent vision of the ancients, telling stories to people of all ages.

This street not only allows you to see the ancient scene with your eyes, but even what you can smell through your nose is an antique atmosphere. I closed my eyes and smelled the sandalwood fragrance emanating from the woodcarving shop. From another direction, the mellow aroma of ink and the fragrance of rice paper permeate the traditional Chinese painting stall, enveloped by the gentle breeze, quietly seeping into people's heart and soul. This distinctive and elegant scent intoxicated me, so I followed it to the ancient painting stall. I gently caressed the wrinkles covered in vicissitudes on the canvas, feeling the kisses left by time on her body, listening to the lingering stories in history with the warmth of fingertips. The various smells in this street mix together, whether strong or mild, fresh or mellow, and they all have a common characteristic, which is that they all come from the outdated yellowing years.

In this fashionable era, countless young minds are eager to catch up with the ever-changing fashion trends day and night, so they neglect to appreciate the crystallization of history and time, and only pursue products of desire and novelty. And among the scurried footsteps that follow the flow, there are still people who stop for this ancient treasure sleeping on the street corner, cherishing their old but timeless beauty. This kind of beauty will not be dimmed by the changes of trends, nor will it vanish with the passage of time, because it comes from the most precious cradle of ancient civilization, and is a unique cultural treasure in the invention art of the Chinese nation.

Chinese Kites: A Legacy of Innovation and Cultural Significance

Ling Liang Church E Wun Secondary School, Alvi, Meher – 16

The Four Great Inventions, a term that encapsulates the remarkable achievements of ancient China, stands as a testament to the enduring legacy of Chinese innovation. These extraordinary creations, including papermaking, printing, gunpowder, and the compass, not only transformed the course of history but also left an indelible mark on the fabric of human civilization. From the humble beginnings of paper, which revolutionized communication and knowledge dissemination, to the awe-inspiring discovery of gunpowder, these inventions reshaped the world's understanding of science, technology, and culture. Embark on a journey through time and marvel at the ingenuity and creativity that gave rise to these Four Great Inventions, forever altering the course of human progress. However, China has a whole lot more other inventions and discoveries that also deserve their attention, here it's going to be regarding kites.

Kites hold a special place in Chinese culture, deeply rooted in tradition and innovation. The tradition of kite-making and flying in China dates back thousands of years, embodying the spirit of Chinese innovation. How has the tradition of kites become so deeply entrenched in Chinese culture, and what does it reveal about Chinese ingenuity?

The origins of kites in China can be traced back to ancient times, with the earliest records dating to around 470 BC during the Warring States period. Initially, kites were used for military signaling and measuring distances, showcasing their practical nature as tools for communication and measurement. How did the humble kite evolve from a military tool to a symbol of leisure and artistic expression, captivating the imagination of people across China?

Kites have become an integral part of Chinese festivals and celebrations, symbolizing freedom, prosperity, and good fortune. The vibrant colors and intricate designs of traditional Chinese kites reflect the rich cultural heritage of the country. In what ways do Chinese kites symbolize wishes for a bright future and harmonious relationships, and how do they embody the essence of Chinese symbolism and tradition?

Chinese innovation in kite-making has led to significant advancements in design and construction techniques. The development of lightweight materials, such as silk and bamboo, has revolutionized kite performance, enabling higher altitudes and greater maneuverability. Furthermore, the implementation of aerodynamic principles has enhanced the flight capabilities of Chinese kites, allowing for graceful and stable aerial displays. How have these technological advancements transformed the art of kite-making and elevated Chinese kites to new heights of performance and beauty?

Chinese kites are renowned for their distinctive shapes and patterns, with dragon and bird-shaped kites being iconic representations of Chinese craftsmanship and creativity. The intricate designs and artistic elements involved in kite-making showcase the meticulous attention to detail and the aesthetic sensibilities of Chinese artisans, making Chinese kites truly exceptional in their visual appeal. In what ways have traditional Chinese kite designs exemplified the creativity and artistry of Chinese culture, and how do they captivate the imagination of people around the world?

The knowledge and expertise gained from kite-making have transcended the realm of recreational activities, influencing diverse fields such as aviation and engineering. The principles of aerodynamics and flight mechanics derived from kite technology have inspired advancements in aircraft design and propulsion systems. Additionally, the study of kite dynamics has contributed to breakthroughs in wind energy technology, fostering the development of kite energy systems for renewable energy sources. How has the humble kite, a symbol of leisure, inspired innovations in fields as diverse as aviation and renewable energy?

In modern times, Chinese kites have found new applications beyond recreational purposes. The utilization of kite technology for military surveillance and communication reflects the adaptability and versatility of Chinese kite innovations. Furthermore, the integration of kite energy systems into renewable energy initiatives underscores the enduring relevance of traditional practices in addressing contemporary challenges. How have Chinese kites

transitioned from traditional leisure objects to modern-day applications, embodying the adaptability and innovation of Chinese culture?

The tradition of kite-making in China symbolizes a harmonious blend of innovation and cultural significance. Chinese kites have left an indelible mark on global innovation, inspiring advancements in technology and serving as a testament to the enduring legacy of Chinese creativity. As we reflect on the importance of Chinese innovation within the tradition of kite-making, we recognize the profound impact of this cultural practice in shaping the world we live in today. The legacy of Chinese kites continues to soar, embodying the spirit of innovation and cultural heritage for generations to come. In what ways does the enduring legacy of Chinese kites exemplify the profound impact of innovation and cultural heritage, and how will it continue to inspire future generations?

The Perfection of Porcelain Elegance

Ling Liang Church E Wun Secondary School, Alvi, Safa Noor – 16

China has been long renowned for its rich history in inventions, with each creation possessing immense cultural and commercial significance. Amidst the vast discoveries, porcelain is undeniably visible as one of China's most astonishing contributions to the world. China's discovery of porcelain is a tribute to their expertise in both art as well as science. This graceful ceramic material has mesmerized the world with its flawless mixture of delicate elegance and resilience. Throughout history, porcelain has been honored as a transcendent form of art, it has not only molded the course of artistic portrayals but also offered as an inspiration for countless artistic manners. This remarkable material holds a deep significance not just in Chinese history but also in the international culture network.

The origin of porcelain in China can be retraced to the Eastern Han Dynasty (25–220 AD). At that point in time, Chinese potters had been experimenting with unique techniques and materials in their pursuit to design functional and beautiful wares. They discovered an extraordinary combination of kaolin clay and petuntse, a feldspathic rock, that, when fired at high temperatures, which then resulted in a refined and lustrous ceramic product. This marked the beginning of porcelain.

Early Chinese porcelain was highly desired for its distinct qualities. Unlike some types of pottery, particularly stoneware and earthenware, porcelain was revered for its distinctive translucency, lightness, as well as durability. These features made it the faultless medium for creating delicate and intricate designs. Due to the production of porcelain becoming a major part of the Chinese economy, numerous kilns had been established all across areas so as to satisfy the increasingly large demand both domestically and overseas.

The production of porcelain reached its peak, throughout the Tang Dynasty (618–907 AD). The imperial kilns of Tang were well known for their exquisite works, with celadon and white porcelain becoming particularly popular. The emergence of these new styles revolutionized Chinese ceramics, pushing the boundaries of artistic expression. While many of these advancements had occurred with the expansion of trade along the Silk Road, they allowed porcelain to reach distant lands and wanted by foreign markets, particularly in the Middle East.

It was in the Song Dynasty (960–1279 AD) when China witnessed further development in porcelain craftsmanship. The time period experienced the development of delicate and refined monochromatic ceramics. The innovations in glaze technology allowed potters to create magnificent celadon and powdered blue wares, while also providing new avenues for artistic expression. The Song kilns were known for their massive scale of production, with millions of pieces created every year for both domestic and international markets.

Nevertheless, it was during the Ming Dynasty (1368–1644 AD) when porcelain truly thrived and met its actual potential. The Ming porcelain was and has become iconic, it is often seen as the summit of Chinese ceramic production success. The imperial kilns at Jingdezhen produced some of the most impressive works that were appreciated and exported worldwide. The Ming styles had a vast variety, ranging from simple monochrome wares to intricately decorated blue and white porcelains. European potters during the Renaissance era had also become inspired by The delicate blue patterns and motifs found on Ming porcelain, which further stimulated the demand for Chinese ceramics across the globe.

In the realm of art, porcelain played a crucial role in China's rich intellectual legacy. The precise craftsmanship and rather complex designs of porcelain vessels showcased the immense skill and artistic vision of Chinese artists, porcelain excelled in capturing the ethereal beauty of nature, imbuing it with a translucent aura. These pieces had not only become masterpieces of aesthetic splendor, but also became functional items for use. The delicate brushwork, vibrant colors, together with the graceful forms of porcelain art demonstrated the impeccable tastes and sophisticated sensibilities of Chinese culture.

Furthermore, porcelain had developed into a major medium for artistic innovation and experimentation, which paved the way for many iconic creations. The selective firing techniques employed by Chinese potters and artists allowed them to achieve the flawless, translucent surface that seemed to radiate an ethereal glow from within. The complex process involved in its creation encapsulated the Chinese commitment for precision and attention to detail. This unique quality gave rise to the intricate design of celadon, with its subtle, jade-like hues. The use of underglaze blue motifs, such as the well known Ming-era blue and white porcelains, introduced a revolutionary artistic style that had a profound impact on the global artistic landscape.

From the scientific perspective, the invention of porcelain showcases China's remarkable understanding of material properties. The invention of porcelain was a remarkable monument to China's unwavering spirit of scientific inquiry. Porcelain is composed of a refined clay composed by the excellent mixture of kaolin, feldspar and quartz. The initial hand shaping of the clay, followed by precise regulation of temperature during firing, contributed to the successful creation of porcelain's resilient yet fragile framework. This mastery of the science behind clay composition and thermal behavior elevated Chinese ceramics to unparalleled heights.

The influence of Chinese porcelain on the world cannot be more overemphasized. It played a significant role in shaping international trade routes around the world, known as the "Porcelain Road" or the "Chinese Trade." The demand for the Chinese porcelain was so high that European traders set sail to find the most direct route to China, so as to be the first to receive the ceramic. This desire led to the Age of Exploration, as expeditions were launched to discover sea routes to bypass the dangers of the Silk Road. The immense commercial value placed on porcelain fuelled a global quest for trade and exploration that fundamentally changed the course of history.

Porcelain's impact was not limited to trade alone. It had also left an indelible mark on the art world. The beauty and elegance of Chinese porcelain inspired countless artists across different cultures and centuries. European porcelain factories were established, attempting to replicate the perfection of Chinese craftsmanship. Although these factories ultimately developed their own unique styles, the influence of Chinese porcelain remained evident in their early works.

In the past, porcelain had practical uses as well. Chinese emperors commissioned porcelain vessels and as symbols of their wealth, power, and refinement. These vessels were utilized in daily activities, such as serving tea and dining. Even today, Chinese porcelain remains highly valued as collectible and contemporary art. However, porcelain's applications have expanded over time. Today, while it is admired for its beauty, it is also widely used in various industries. While preserving its traditional aesthetic charm, porcelain has been found in many contemporary art forms, allowing artists to express their creativity through novel interpretations of this ancient medium. Its heat resistance and insulation properties make it suitable for electrical insulators and components. Porcelain has become a symbol of wealth and power to being a versatile material with countless applications, making it highly valuable in both art and different industries.

In conclusion, China's invention of porcelain exemplifies the seamless fusion of art and science. Its influence on artistic expression and its enduring material properties have created a lasting legacy. From its small beginning in the Han Dynasty to its peak of success during the Ming Dynasty, porcelain has continuously advanced, pushing the boundaries of artistic expression and creativity. Porcelain's elegant aesthetics and complex artistry have fascinated individuals throughout history, while its scientific mastery remains a tribute to China's unrivaled commitment to uncover the mystery of nature. From the exquisite craftsmanship of Chinese artists in the past to its diverse applications in modern industries, porcelain continues to captivate the world with its everlasting enchantment and enduring appeal.

The Inventor of Paper

Ling Liang Church E Wun Secondary School, Cruz, Janelle Anne Matusoc – 16

China is known for their history and ancient civilization, and there have been many inventors who have contributed greatly to the world. From ancient times to the present day, China's has had great inventions that have had a profound impact on various aspects of human life. Even now, centuries later, we continue to rely on and benefit from these remarkable contributions and creations. But Cai Lun is one of the well-known inventors from China.

Cai Lun is known to be the first one to make paper by using the papermaking process. Although there are early forms of paper had already existed since the 3rd century, he still holds the history of paper because of his unique to make paper. Before his invention, ancient Chinese civilizations used materials like bamboo strips, silk, and even animal bones to write on. However, Cai Lun's creation of paper made writing more accessible, affordable, and efficient. His distinctive way was to improve the skill of papermaking systematically and fix a recipe for papermaking, using materials like bark of trees, remnants of hemp, cloth rags, and fishing nets. His innovations in papermaking had a significant impact on human history, leading to large-scale manufacture of paper and the spread of paper production across the world.

The invention of paper had a profound impact on human civilization. The widespread availability of paper led to an explosion in the spreading of knowledge, the development of literature and art, and the advancement of science and technology. Paper became an essential tool for education, administration, and communication, shaping the course of history and progress.

Cai Lun was born in the year 50 AD in Guiyang, which is present-day Leiyang, Hunan province, China. Little is known about his family background or early upbringing. However, it is believed that he came from a relatively humble background and was not born into nobility or wealth. Despite this, he possessed a thirst for knowledge and a strong desire to make a difference in the world. This elevated role granted him an unusual access to the upper echelons of power, allowing him to shoulder significant responsibilities and undertake crucial assignments. It was during his tenure in the opulent palace that Cai Lun's profound realization of the pressing need for a writing material that was both more efficient and long-lasting became increasingly apparent.

Cai Lun's talent and dedication caught the attention of the Han court, and he was eventually appointed as a eunuch in the imperial palace during the reign of Emperor He. As a eunuch, he had access to the highest levels of power and was entrusted with important tasks. It was during his time in the palace that he became acutely aware of the need for a more efficient and durable writing material.

His invention of paper had a profound impact on the world. It not only revolutionized the way people communicated but also played a crucial role in the spread of knowledge, education, and

civilization. With the availability of paper, ideas and thoughts could be easily documented, shared, and preserved.

His improvements to paper-making are considered to have had an enormous impact on human history, and of those who created China's four great inventions such as the compass, gunpower, papermaking and even printing—Cai is the only inventor whose name is known. Although in China he is revered in ancestor worship, deified as the god of papermaking, and appears in Chinese folklore, he is mostly unknown outside of East Asia. His hometown in Leiyang remains an active center of paper production.

When he had invented paper this had not only left a lasting impact on Chinese society but also influenced cultures worldwide. The invention of paper was an important step in the advancement of human civilization, enabling the recording and dissemination of knowledge on a scale never seen before. Cai Lun's ingenuity and his commitment to innovation continue to inspire generations of inventors, reminding us of the immense power of human creativity. He reported his discovery to the emperor, who commended him for it.

Important improvements were subsequently made to Cai's papermaking process by his apprentice, Zuo Bo, and the process was rapidly adopted throughout China, eventually spreading to the rest of the world. Cai Lun's invention of paper ranks as one of the top four Chinese inventions and has had a lasting impact on civilization.

Although Cai Lun was a well-known figure in China, there is no evidence to suggest that he was famous before his invention of paper. His contributions to papermaking and the spread of knowledge were recognized during his lifetime and after his death. Today, Cai Lun is remembered as the father of the modern paper industry and the man responsible for spreading paper all across the world.

In conclusion, Cai Lun's invention of paper stands as a testament to the remarkable achievements of ancient Chinese inventors. His groundbreaking contribution has shaped the world we live in today, enabling the exchange of ideas, culture, and progress. And his legacy serves as a reminder that innovation knows no boundaries and that a single idea can have a profound impact on the course of history.

His determination to find a better writing material, combined with his access to resources and knowledge, allowed him to make this creative contribution to human civilization. The invention of paper fundamentally transformed the way information was recorded and transmitted, leaving a lasting legacy that continues to shape our world today.

The remarkable achievement of Cai Lun in the invention of paper had an incredibly profound and enduring influence on society. His famous creation completely transformed the realm of writing and communication, significantly enhancing the accessibility of knowledge and facilitating the exchange of cultures. Even in the present day, Cai Lun's unforgettable legacy

continues to have a significant impact, as paper remains an indispensable medium for education, literature, and the preservation of our rich human history. It is impossible to overstate the importance of his invention, as it has profoundly shaped the way we communicate and acquire knowledge, leaving an indelible imprint on the evolution of human civilization and its progress over time.

Undead Fairy

Ling Liang Church E Wun Secondary School, Kong, Hiu Yuet – 16

In 2050, the world is a full of technology and there have many investors and they are work hard to researching the new investments. They make a “ocean cleaner” for helping to clean the ocean. Why do we make this investment? That is because the ocean had been having more serious pollution problem in 2025, the chinese investors were hard working to solve this problem. Nowadays, they have some method can temporary relief the problem. However, they did not have any idea could solve the problem from completely.

Until one day of 2035, a chinese investor broke in a place like a fairyland peach forest carelessly. The investor saw this view obsessively. Suddenly, the investor discovered an animal like a fairy on the top of the sea. It was a prehistoric creature lived under the sea and its body was so small like an ant. The investor saw it could decompose harmful substances by accident in unpolluted sea areas. The investor saw it had that function, so he had an idea was built a machine could clean the oceans. And the chinese investor saw it could decompose and devour substances, so he decided to take it back the graduate school for the examination of solving the problem.

In 5 years of researched of the prehistoric creature , the chinese investor gave a name “undead fairy ” to the prehistoric creature. The chinese investor discovered “undead fairy ” could live under the sea and on the land everywhere. And it's slime could decompose and devour harmful substances, also could help us to solve the problem in the ocean. The other discovery was it had huge of regeneration ability, no matter how injured it were, it would regeneration and it was beautiful like a fairy but it' quantity was too little not enough 1000. The special feature of “undead fairy ” caused the investor's interest. The investor took out “undead fairy”'s slime to do experiments, want to learn why and what substances made the “undead fairy ” can decompose the harmful substances for solved the problem to devise a machine. The investor tested the slime and tried to build a machine to clean the color of pollution sea water. When the inventor had learned more about the “undead fairy ”'s slimes how to decompose the harmful substances , he also devised , tested and improved the machine . He hoped that could faster to solve the pollution problem of the ocean.

In 2035 to 2041, the chinese investor had been starting to build a robot and researched what substances could substitute the “undead fairy” 'slimes to decompose the harmful substances in the ocean. He built the machine for solve the problem completely, but the machine finished the test. The machine only could clean the ocean color be more cleaning, but it could not decompose the harmful substances. The investor had a little bit disappointed of that. However, he was happy with the development of the goal had a huge improve. That was the investor saw the result as fail and he thought could clean the color of the polluted water.

After the fail of the involvement, the chinese investor was more interested of the “undead fairy”, want to quickly find the secret of it for helping to make the investment. In 2041 to 2043, the investor researched and developed the investment again and he found a breakthrough from “undead fairy ”'s body structure. “Undead fairy” body had a special way was using feathery antennas to decompose the harmful substances, that was using algae attached the antennas, and then use high speed rotated it to decompose around “undead fairy ”'s harmful substances for purity water quality. After the investor drank the tea, he began.

Besides, the Chinese investor found the method. He had been working on this idea before other investors found the method to purity water quality solve the problem. In 2047 the investor improved the machine, made it could plant the algae and use high speed fiction the algae to purity harmful substances in water and use the old machine could turned watercolor normal. The investor put the investment into a part of a little bit pollution of the ocean to test the function.

After the test, the investor saw it was working successfully could decompose harmful substances in water and could keep the water was cleaning, being happy and gave name of the machine “ocean cleaner.”

In 2050, the chinese investor announce to the world China successfully manufactures “ocean cleaner” and it can purify harmful substances in water to clean the ocean, is an invention that has contributed to the world at the world press conference. After 2 months, “ocean cleaner” officially launched and purify Pacific Ocean. The “ocean cleaners” are mass-produced, distribute it to other oceans by the chinese investor and the World Health Organization.

After 6 months, the harmful substances in oceans are cleaning up by “ocean cleaner” and the marine ecosystem is back to normal, whole people can swim in the ocean again. This investment help to solve the pollution problem in ocean completely.

The Enchanting Tradition: Exploring China's Twenty-Four Solar Terms and Their Cultural Significance

Ling Liang Church E Wun Secondary School, Lock, Cheuk Him – 16

Do you know that Chinese people always use a traditional method to predict the change in climate? This method is called “Chinese twenty-four solar terms”. It originally comes from a historical and fascinating story.

In the past, Chinese people Using Tugui's actual sundial measurement, the longest solar shadow each year is determined as the "Sun Solstice" and also known as the Sun Solstice, which is the lunar solstice, the Long Solstice, and the Winter Solstice as the four images in the “Tai Chi Diagram”. In the spring and autumn, each day and night have one day, which is designated as the "spring equinox" and the "autumn equinox". Various human nations have these four. In the Shang Dynasty, there were only four solar terms called “four seasons” which included spring, summer, autumn and winter, but by the Zhou Dynasty there were eight diagrams divided from “four seasons”. By the Qin and Han Dynasties, the twenty-four solar terms had been fully established. Each of the twenty-four solar terms corresponds to the position that the sun reaches every 15° of movement on the ecliptic. The twenty-four solar terms are divided into 12 solar terms and 12 middle terms, one by one. The twenty-four solar terms reflect the annual apparent movement of the sun, so the dates in the Western calendar are almost fixed. The solar term in the first half of the year is on the 6th, the middle solar term is on the 21st, the solar term in the second half of the year is on the 8th, and the middle solar term is on the 23rd. The 12 solar terms are also the starting days of each branch in the stem and branch calendar month. For example, the beginning of spring is the beginning of the “Yin month”, and the “Jingzheng” is the beginning of the “Mao month”.

The naming of the twenty-four solar terms reflects the changes in seasons and climate. The Beginning of Spring, the Vernal Equinox, the Beginning of Summer, the Summer Solstice, the Beginning of Autumn, the Autumn Equinox, the Beginning of Winter, and the Winter Solstice, also known as the Eight Bits, are the eight key nodes that distinguish the impact of the revolution on the earth; Rain, Jingzhe, Qingming, Guyu, Xiaoman, Ear, Slight Heat, Great Heat, Sixteen weather conditions, including extreme heat, white dew, cold dew, frost, light snow, heavy snow, light cold, and severe cold, reflect the more subtle climate changes in the four seasons.

The twenty-four solar terms are a knowledge system and social practice formed by the Chinese people by observing the annual movement of the sun and understanding the changing patterns of seasons, climate, phenology, etc. throughout the year. It is the movement of the heaven and the earth that the Chinese ancestors followed in their long-term agricultural production. and the temporal regimes created by the laws of climate change. It is not only the embodiment of the Chinese ecological thought of "harmony between man and nature", but also condenses the ecological wisdom of adapting measures to the times, local conditions and circular development. The twenty-four solar terms are the basic rules for Chinese ancestors to understand and transform nature, society, and life. They demonstrate the uniqueness of Chinese people's understanding of the universe and nature, and are of great practical significance for promoting green development and building ecological civilization today. The twenty-four solar terms also extend to the art culture of China such as “The song of twenty-four solar terms”.

On November 30, the 11th Ordinary Session of the Intergovernmental Committee for the Protection of Intangible Cultural Heritage of UNESCO passed a review and approved China's application for the inclusion of the “Twenty-Four Solar Terms” in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity.

The four seasons have become an extensive and profound invention in the culture of China. Although this is an accurate method for predicting weather, it is replaced by a weather checking app nowadays. I think it is sad that this traditional method has disappeared in our life one day. But hopefully, I think there are still some people who keep the “twenty-four season terms” alive with me!

The Ancient Wisdom of Cupping Therapy

Macau Pui Ching Middle School, Guo, Ana – 15

Recently, Traditional Chinese Medicine (TCM) has been gaining popularity and captivating the attention of individuals in Western countries. The diverse range of treatments it offers leaves many foreigners in awe. In China, there is a well-known saying: "Acupuncture and cupping, more than half of the illnesses cured." While acupuncture is undeniably the most commonly used treatment, cupping therapy usually remains underrated and overlooked. This essay aims to ignite curiosity and deepen understanding of the profound benefits of cupping therapy.

In the vast tapestry of China's inventions, cupping therapy emerges as one of the most intriguing and enduring practices. The procedure begins by immersing the cups in water to expel the air. The practitioner then creates suction by sucking the cup onto the patient's skin, resulting in the formation of circular markings that are often black in color. Meanwhile, certain variations of cupping therapy may involve additional ritualistic ceremonies. However, how exactly does this therapy work?

My first experience with cupping occurred during a period of severe illness that lasted for several months. As a result, my mother decided to explore alternative remedies. The cupping session took place in a tranquil room softly illuminated by flickering candles strategically placed throughout the space. The air was infused with the gentle scent of aromatic oils, creating an atmosphere of serenity and relaxation.

The practitioner stood beside me, holding a small flame to the opening of a glass cup. This created a momentary vacuum before she swiftly placed it on my back. As the cup adhered to my skin, a gentle suction caused my flesh to rise, forming a small, circular dome. With my eyes closed, she carefully proceeded to move from one cup to another, repeating the process. It felt as if the cups were drawing out the weariness and stress that had accumulated within my body. It was a unique sensation – a blend of warmth, pressure, and relief. After this experience, I soon began to recover from the illness that had plagued me. With firsthand experience of the profound effects of this powerful treatment, I delved deeper into this traditional skill.

According to Chinese mythology, cupping is believed to enhance the flow of life force 'Qi' and blood within our body. It is said to aid in the elimination of pathogenic factors. Additionally, many believe that cupping plays a crucial role in balancing 'yin' and 'yang'. By harmonizing these energies, cupping therapy is thought to restore the body's resistance to pathogens, improve blood circulation, and alleviate pain.

The history of cupping therapy can be traced back to the Han Dynasty. Evidence of its usage was found in a silk manuscript discovered in a tomb. Furthermore, more than 200 years ago, a doctor named Li Shizhen compiled a comprehensive book titled *Bencao Gangmu*, known in English as *the Compendium of Materia Medica*, which provides detailed insights into the history, origins, and diverse techniques of cupping. Within this book, Li explores various cup shapes, their functions, and practical applications.

Nowadays, this ancient art is undergoing a renaissance, as modern technology sheds new light on its development. In the past, cupping therapy involved the use of cattle horns or sections of bamboo. Nowadays, modern cupping sets are predominantly made from materials like silicone, offering greater flexibility and ease of use. In addition, the invention of electric and magnetic cupping devices has enabled practitioners to further optimize their techniques and skills.

A few years ago, the renowned American actress Gwyneth Paltrow made headlines when she appeared on the red carpet wearing a backless dress, revealing cupping marks along her spine. Since then, an increasing number of celebrities have proudly displayed these distinctive circular marks on their backs, endorsing the utilization of traditional Chinese

medicine (TCM). The presence of cupping therapy serves as a testament to the enduring legacy of China's inventions. The tales of cupping's journey from ancient times to the present day serve as a reminder of the profound wisdom and timeless relevance of ancient practices in our ever-evolving world.

Experience Everyday Life with Ancient Chinese Wisdom

Macau Pui Ching Middle School, Lu, Meng Fei Kystal – 15

As we are aware, China has been the birthplace of numerous significant inventions throughout history. When contemplating ancient innovations, the prominent ones that often spring to mind are papermaking, the compass, gunpowder, and printing. Nevertheless, it is essential to acknowledge that there exist lesser-known inventors and their inventions that have subtly but significantly influenced our daily lives. These often-overlooked contributions deserve our attention and recognition.

From the primitive period to the Qing Dynasty and continuing to the present day, our ancestors in China have brought forth an astonishing array of inventions. With such an extensive history, it is indeed challenging for individual inventions to stand out, especially when there were countless silent contributors whose names might remain unknown to us. To gain a deeper appreciation for their impact, let us explore an ordinary day and highlight some of the remarkable inventions that shape our daily lives.

When you wake up in the morning, brushing your teeth is an essential part of your routine. However, it may come as a surprise that toothbrushes did not exist until the Ming Dynasty. It all began when Zhu Youcheng, who was known as Emperor Xiaozong during the Ming Dynasty, started experiencing dental issues after meals. Concerned, he consulted a doctor who explained that the decay of food residue was causing moth infestation in his teeth and that the residue must be cleaned out after each meal. After thoughtful consideration, Ming Xiaozong made the world's first toothbrush with pig bristles and bamboo boards to effectively clean teeth and improve dental health.

Not until it rains heavily as you head to school do you realize that you have forgotten to bring your umbrella, so you hurry home and get it. The invention of umbrellas can be traced back as early as 3500 years ago in China. Legend has it that Lu Ban, a Chinese carpenter and inventor created the first umbrella. He was inspired by children using lotus leaves as a rain shelter and constructed an umbrella by crafting a flexible framework covered with cloth. The method is deceptively simple, but it was difficult for people to discover at that time. Until now, umbrellas have become a necessity and even a kind of fashionable accessory when it is raining.

Ding-dong ding-dong. The bell rings, and there is always a test in the first period at my school. Although examinations are frequent, few people know their origin. The story began in ancient China. According to historical records, Shi Le from the Sixteen Kingdoms period established official schools in county countries to recruit students. In order to assess the student's learning outcomes and progress, Shi Le devised a method that is now famous worldwide: exams. Students were required to pass three examinations before graduation, which was quite rigorous. Subsequently, the imperial examination system of the Sui Dynasty constantly improved upon Shi Le's method. Gradually, Japan, Vietnam, North Korea and other countries began to adopt China's implementation of the exam system. The next time you have a test that makes you anxious, you can secretly attribute your frustration to Shi Le. However, we must also acknowledge that exams play a significant role in society. They not only select outstanding talents for us but also provide individuals with greater motivation to advance in a merit-based society driven by school assessments.

My school day wonderfully ends with a PE lesson, and the task for today's class is to play football. Have you ever thought about the origins of football? It is often mistaken to have originated in the West. However, football, originally known as Cuju and made of animal fur, was invented by Chinese ancestors. The credit goes to the Yellow Emperor of China, who introduced this sport. During the prosperous Warring States period, people engaged in various recreational activities to pass the time. Cuju was not just a game; it also served as a means to train soldiers and enhance physical fitness.

After a long and tiring day, there is nothing quite as comfortable as slipping into silk pajamas and enjoying a restful night's sleep. Whenever we come across silk in recent years, our thoughts immediately turn to the Silk Road.

The name itself, "The Silk Road," implies the significant contribution of silk to trade. The earliest traces of silk in China date back to around 3630 BC, during the Chinese Neolithic period. These silk artifacts were discovered in Henan Province, an area widely recognized as the cradle of Chinese civilization. In traditional Chinese culture, silk holds profound symbolic meanings of beauty, elegance, and luxury. Furthermore, silk has become an integral and cherished element of Chinese culture.

In today's rapidly developing world, Chinese inventors continue to achieve remarkable advancements. From my perspective, one of the most thrilling inventions is smart glasses that provide vision to the blind. This groundbreaking invention required extensive research and study, and fortunately, the experimental results have been impressive. These glasses, created by researchers at Zhejiang University, integrate various functions such as navigation, face recognition, and reading to guide visually impaired individuals through sound cues. According to reports, users can navigate, identify contacts, and determine their location and distance through voice commands. With the advancement of technology and the dedication of China's inventors, a range of barrier-free technology products now provide greater convenience for people with disabilities.

The world is moving at an increasingly frenetic pace. I firmly believe that China will continue to lead in the development of inventions that have the potential to transform the world, reshape people's lifestyles, enhance convenience, and benefit special communities such as the disabled. Consider these possibilities: advanced technology that allows individuals to effortlessly brush their teeth while wearing silk pajamas; the convenience of automatic street canopies that eliminate the need for carrying umbrellas; a brain examiner that enables paperless or typing-free test-taking; and the opportunity to play football online alongside virtual avatars of renowned soccer players. Who knows? Perhaps the writer of this article will become the inventor of these items one day! Together, we can become a shining star in the history of Chinese invention!

Bridging the Past and Future: China's New Innovations of Ancient Technology

Macau Pui Ching Middle School, Ng, U Hin Marcus – 15

Technological developments have always played a crucial role in benefiting communities by bringing significant advancements and improvements to various aspects, ranging from medical science to infrastructural engineering. This is evident not only in modern times but also throughout history, with ancient civilisations like China making notable contributions.

Developments in medical science

In ancient China, several medical advancements were made, paving the way for further developments in modern medicine. For instance, the invention of narcotics by doctors in ancient China aimed to diminish the pain of patients during treatments such as amputation. A doctor in the Han dynasty named Hua Tuo first achieved this by allowing patients to drink a bowl of soup containing special plants. Although the exact formula has disappeared, scientists have developed other forms of narcotics based on this early type, such as morphine administered through injection or inhaled through devices like Forane. Some narcotics can even anesthetize humans simply by sticking a sticker containing them on the skin. These forms of narcotics are often used by surgeons during operations to anesthetize patients. If the early narcotics had not existed, modern narcotics would have been invented much later.

However, some patients might be allergic to narcotics, stating that they can only withstand a tiny amount of narcotics in their bodies at the same time. In this case, another invention in the medical science field, acupuncture, can address the problem. Acupuncture is another invention believed to have been invented by doctors in ancient China about 2100 years ago. It was developed as a method for treating patients. Tiny needles would be inserted into specific parts of the patient's body, followed by small movements of the needles after insertion. According to the book "Huang Di Nei Jing," which describes acupuncture theories, this method could help reorganize the "qi" in the patient's body and aid in their recovery. In the past, acupuncture was often used to treat wounds or soreness more than illnesses. However, about 60 years ago, scientists discovered that acupuncture can stimulate the patient's specific nerves and enhance the effect of regular narcotics. This approach allows regular narcotics to have the same effect while reducing the required dosage. It can help solve the problem of patients being allergic to narcotics or prevent them from developing drug resistance.

Moreover, acupuncture itself has also undergone developments. Taking the needles that operators use as an example, they used to be made of bone or bamboo, which are blunter and thicker compared to the needles used today, mostly made of metal. Countless methods to treat illnesses were established, and the theories have become more systematic since their invention about 2100 years ago. I believe that in the future, narcotics might be used in an even safer and side-effect-free environment. Perhaps, by using simpler acupuncture methods, the process of anesthetizing could be greatly simplified, enabling normal people to perform it on their own. I believe that China has tremendous potential for medical advancements. Acupuncture plays an important role in enhancing modern medicine, and narcotics can be used more safely and conveniently.

Developments in infrastructure engineering

Similar to medical science, ancient China also made significant strides in engineering and infrastructure. Hydraulic engineering, in particular, plays an important role in improving the quality of life for communities. The construction of the Grand Canal, a massive waterway spanning 1776 kilometers in the eastern part of China, improved the transportation and trade systems in the surrounding areas since its construction during the Sui dynasty. While boosting economic growth by eliminating time and cost-consuming overland journeys, various innovative designs by ancient Chinese engineers can still be found in the canal.

In parts of the canal where the water level differs, pound locks were used. Pound locks are inventions that modern artificial waterways still use in similar scenarios. Two or more gates are placed between those parts of the canal. When one gate is closed, the other one can open, allowing water to flow through the opened gate and ensuring a balanced water level in that section of the canal. Ships can pass through that part easily and continue to the next section by repeating the same action with the next gate.

Another example of these innovations is the Dujiangyan Irrigation System, which was built during the Warring States Period in the Min River. Similarly, the purpose of this system is to redirect water from different waterways upstream and provide additional transportation methods. But the most eye-catching part is that the system itself does not require any machines or manpower to maintain, nor does it need any surveillance. The only thing that works to redirect and distribute the water is the system's geometrical design. The Yuzui bypass dike is a levee that is shaped like a fish's mouth and diverts the water into an inner and outer channel. Since the river is bent, water that passes through the outer channel would be much faster. Additionally, sand and gravel would be thrown into this channel because of centrifugal force. The sand and water in the outer channel would be further directed to other small water systems through the Feishayan spillway, preventing the inner channel from being flooded or clogged. Water that flows into the inner channel would be directed to nearby plains and satisfy agricultural needs through the Baopingkou diversion channel. Notably, the riverbank of the outer channel is higher than that of the inner channel to ensure that only excessive water would go to the outer channel. This design still works perfectly now with the help of some simple reinforcements on weak parts.

These two examples of infrastructure engineering act as the fundamentals of agricultural, economic, and transportation industries nowadays, proving the value that the products of engineers in ancient China still bring to the community today. It is undeniable that those engineers were far-sighted. I believe that these irrigation systems will inspire future generations of engineers to build infrastructures in developing areas with more innovative ideas and plans on a larger scale.

In conclusion, technological developments undeniably bring value to the community. On one hand, ancient Chinese inventions in infrastructure engineering continue to shape our world, providing us with valuable foundations for modern advancements. On the other hand, ongoing improvements in medical science hold great potential for the future, offering opportunities for innovation. By encouraging technological progress, communities can find new possibilities, overcome difficult challenges, and create a better future for all. Through continued investment in research and development, we can use the power of technology as a tool to tackle the problems that will arise in the future, improve the well-being of individuals and communities, and pave the way for a brighter and better future.

New Tales of China's Trends of Inventions

Po Leung Kuk No. 1 W. H. Cheung College, Liu, Tsz Yu – 15

It is well known that in ancient times, China held the world's leading position in many fields in the study of nature from the 1st century BC to the 15th century AD, having the greatest global significance. With remarkable creations and technology, most notably, the Four Great Inventions – compass, gunpowder, papermaking, and printing, China prides itself on having a respected position in the exchanges between the East and the West and greatly advanced China's productive forces and social life. Not only were the Four Great Inventions appreciated and respected, but also the Chinese people's breakthroughs in farming, exploitation, machinery, medicine, astronomy, and textiles, just to name a few.

Nowadays, the world is fast-paced and constantly changing, where newer aspects of technologies, bringing modern inventions, tend to grab people's attention more as we are fascinated by their novelty. It is easy to overlook the magnificence of past inventions. Is it that we have forgotten the traditional inventions, which once had their glory? Inspired by these ancient techniques and their tools, we renovate and improve them, serving them as the foundation of our future, and they influence our new ideas and creations, thereby opening up a new world of possibilities for tomorrow.

Take the modern seismograph for example. It is widely used in seismology research, earthquake monitoring, and hazard assessment. It works by connecting multiple seismographs digitally to a global seismic network, which enables monitoring and rapid detection of earthquakes. They provide valuable data to analyze earthquake patterns, assess earthquake hazards, and assist in earthquake early warning systems. However, this could not be done without the Chinese seismoscope representing an early attempt to develop a device to detect earthquakes. Through the designs and mechanisms of ancient Chinese seismoscopes, it demonstrates the fundamental concepts of recording and detecting seismic activity. The same applies to other inventions – every inventor gets their inspiration from and pays homage to another inventor and its invention, and therefore they enable us to provide more potential, push society towards ever greater heights, and propel us forward to the boundaries of current technological limits.

Given the non-stop development in technology and innovation, in 2017, a brand new term "Four Great New Inventions" came along in China regarding mobile payment, e-commerce, high-speed rail, and bike-sharing. Even though none of them originated from China, it is China's greatest endeavour to develop them to an extraordinary level, making countries unable to resist the urge to emulate the success of this invention.

To pick one of the four that is most revolutionizing, mobile payment is a common choice for people. Thanks to the expeditious development of China's mobile payment industries with the assistance of third-party platforms, tons of bacteria-hosting and environmentally unfriendly banknotes and coins are eschewed. A survey in 2022 shows that only 0.2 per cent of people don't use mobile payment in their daily lives. China is now moving ever closer to a cashless society, and Chinese people do not have to even carry a single cent just only your phones. Moreover, some don't need to bring a phone with the new state-of-the-art biometric payment methods like face or fingerprint recognition payment systems. Whether you need to make a purchase, take a taxi, or pay electricity and water bills, you can simply show your face or fingerprint for a quick scan to make the transaction. The convenient China high-speed rail network may grab your attention with it being the longest such network in the whole world, with more than 42,000 km, enough to wrap around the Great Wall of China. Given that the travel time has been reduced by a matter of hours, it is easy to understand why as of 2022, the high-speed rail in China transported over 2 billion passengers. All these inventions improve our efficiency and enhance our quality of life significantly.

It is evident that without the ancient Chinese inventions then, there would not be the inventions and the people who invent for the sake of our future now. Going on with the trend, we can speculate that the new inventions will focus on the benefits of efficiency improvement and quality of life enhancement. Just by sight-seeing in China, you can observe that China has become a smart country. As China has been investing heavily in e-commerce, smart cities, and urban technologies, with the advancing development of the 5G and 6G technological deployments, transferring data at a high-speed rate, will only get smarter. It is also safe to say 7G, 8G and so on will be hot topics shortly, which allows us to have rapid data transmission. The inventions can also be seen involving artificial intelligence (AI) because this technology can be applied in various industries, which are already starting to fuse intelligent systems along with automation and robotics to form agile or even unmanned frameworks. The Chinese government has also stated that it is planning to lead the world in AI technology. Aside from the aforementioned biometrics technology,

natural language processing and automated vehicles are also some of the notable advancements in AI technology China has made. Not only that, China is also making good use of virtual reality (VR) and augmented reality (AR) technology, implementing them in education, recreation, and artistry. Therefore, China is seen as a high-technology country and can be foreseen to lead humanity to a new digital-and-reality-fused era.

Although China's inventiveness may still have much room to improve, there have been various policies and initiatives related to technological developments, encouraging inventors to upgrade their technology and foster their innovations, hoping that this will allow future generations' imagination to soar with no boundaries. China's well-known companies in e-commerce and technologies like Alibaba, Tencent, Baidu, and Taobao all are co-creating a vibrant internet and network for more types of digital development and they are great examples of successful combinations of the Internet and reality, which helps the technological developments. Due to China being actively involved with blockchains and big data analyses, we can witness rapid growth in digitization, and foresee trends of digitalization, providing us with new concepts, from digital economy to digital marketing, and even multiple potential digital revolutions.

Apart from technological development affecting the future trend of inventions, it can be seen that the future trends of inventions lie in innovators' creativity, providing us with more convenience and sustainability towards the environment for future generations in unique ways. In a nutshell, we can look forward to days without the requirement to do repetitive tasks, and the transformation of being more digital and eco-friendly with the assistance of both present and future, Chinese and global, inventions, where Chinese inventions specifically, focus on technological advancements.

New Tales of China's Inventions

Po Leung Kuk No. 1 W. H. Cheung College, Lui, Shing Chung – 16

All of us are enjoying the benefits of advanced technology nowadays. It seems like most of these inventions come from the Occident while China is just starting to be a great power in the world. However, China was once very powerful and advanced in history for a long time. Chinese people were good at Mathematics, Medicine, and inventing many things which had become the fundamental technology for the modern world. This brings us to the topic of “The Four Great Inventions”, also known as the Four Great Ancient Inventions of China. It is renowned as four significant technological and scientific breakthroughs which contribute a profound impact on human civilization. They are papermaking, printing, compass, and gunpowder. Each of these inventions revolutionised various aspects of human life including society, culture, and warfare, from communication and knowledge dissemination to warfare and navigation. We are going to delve into the history, significance, and impact on our lives of these immortal inventions.

Considered to have played a crucial role in the development of civilization, papermaking revolutionized communication, education, and the dissemination of information. Imagine the time without paper, when the knowledge of a generation couldn't be recorded easily and efficiently, the later generation didn't have enough prior information and had to explore the world by themselves. Of course, the study of all subjects was slow. In fact, not only did papermaking facilitate the spread of literature, art and ideas, and the advancement in science, philosophy, and culture, but it is also essential for wrapping, packaging, towelling, insulating, and photography nowadays.

The origin of paper can be traced back to ancient China, where it was first developed during the Han Dynasty. Before paper, various materials such as bamboo slips, silk, and wood were used for record-keeping, but these were expensive and cumbersome, making them impractical for widespread use. Therefore, Chinese people tried to use the inner bark of certain plants, such as mulberry and hemp, which were more flexible, and durable compared with those stated above.

It all started back in AD 105 with Cai Lun, an official serving the Imperial Chinese court. He managed to craft paper from mulberry and various other bast fibres, as well as old rags, fishnets, and hemp waste. The fact that he even could produce paper from such rudimentary materials is quite stunning. In those early days, the process was extremely labour-intensive, involving the gathering of raw materials, the preparation of fibres, the shaping of the paper, and finally, its drying. During the spring or early summer, when the fibres were strongest and most flexible, the bark was collected and soaked in water to soften it. The retting process, in which stone hammers or wooden mallets were used to beat the bark into smaller pieces, followed. The fibres were then rinsed and cleaned to remove impurities and boiled to soften them and enhance their flexibility.

Once the fibres were ready, they were mixed with water in the form of a slurry. It was poured into a deckle, a rectangular mould made of bamboo or wooden slats, and dipped into a bucket of water after that. Gentle shaking of the mould to get a uniform sheet and drain away excess water was needed before drying. Finally, it was dried in the sun to prevent warping or wrinkling of the paper.

Over many years, the technique invented by Cai Lun underwent improvements to refine the quality of paper and increased production efficiency. For example, by applying a thin layer of gelatinous material to the surface of the paper, ink absorption was reduced and thus the ability to hold writing or printing ink is increased.

After Cai Lun invented this technique, it was very popular with the Chinese people as it was cheap and convenient. It is even spread to the rest of the world by the Silk Road. Starting from this time, using paper is no longer limited to the rich but accessible to ordinary people. It increased literacy rates and the democratisation of knowledge. Enabling the creation of books and documents, it is possible to record and preserve knowledge in an organised way. It had a great effect on cultural and economic aspects also through preserving historical records and

cultural heritage and creating job opportunities at that time. The impact of papermaking is far-reaching when you think of our everyday life.

When you think of books nowadays, you cannot help associating papermaking with printing. That is another renowned invention of Great China which further facilitates the dissemination of information. Students must have the experience of being punished by their teacher for copying textbooks. And that is how books were produced by hand copying, a time-consuming, labour-intensive, and inaccurate method. Suppose without printing, the production of books would be unbearably slow.

According to information from various sources, printing technology emerged in the 6th century during the Tang Dynasty. People were seeking efficient methods to reproduce written materials when they found copying troublesome. The earliest form of printing was woodblock printing, which involved carving characters onto wooden blocks. By applying ink to the carved surface with a paintbrush, the patterns carved can be pressed onto paper. However, this method was still labour-intensive and time-consuming. Each wood block can only print a certain piece of work and a long indispensable time is needed to carve the characters precisely. In addition, the intricate process of carving made it difficult to reproduce complex and detailed images.

In about 1041–1048, Chinese alchemist Pi Sheng invented movable type, which greatly improved the shortcomings of woodblock printing. In the book *Brush Talks from Dream Brook* written by Shen Kuo in the same period, the Northern Song Dynasty, Pi Sheng conceived of a movable type made of an amalgam of clay and glue hardened by baking. Each character was engraved on the convex surface with a depth of 1 to 2 mm and baked to make it hard. When printing, he placed the types close together in an iron frame. When the paste was slightly melted by fire, he took a smooth board and pressed it over the surface so that the block of type became even. As a rule, he kept two forms going. While the impression was being made from the one form, the type was being put in place on the other. When the printing of one form was finished, the other was ready. In this case, he could print rapidly by using two plates alternately. The movable type printing, including wooden, clay, metal, and ceramic types, provided much greater flexibility and versatility compared to woodblock printing. Texts could be reproduced efficiently with few errors.

Although in 1313, Wang Chen, a magistrate, had had a craftsman carve more than 60,000 characters on movable wooden blocks to publish a treatise and invented horizontal compartmented cases that revolved around a vertical axis, the technology was not followed up in China. Fortunately, it was assimilated by the Uighurs who lived on the borders of Mongolia and Turkistan and transmitted to Korea, Japan, Vietnam, and the Philippines. Nevertheless, movable type printing did not spread to Europe as papermaking did. Not until the 15th century did Europe develop printing technology when Johannes Gutenberg originated a method of printing from movable type. China's invention of printing technology advanced the development of the rest of the world.

The impacts of printing technology were not limited to knowledge dissemination, literacy, and education increase. Printing technology played a significant role in standardising languages and spelling. It reduced spelling variations and inconsistencies and as a result, contributed to grammatical rules and the development of national languages. Moreover, it helped the printing industry to become a significant sector, fuelling the growth of publishing houses, paper mills, ink manufacturers, etc.

While China contributed a lot to papermaking and printing, it also played a pivotal role in exploring the planet. Without compasses, humans could not determine direction accurately or travel to other parts of the world. It was very important for people to shape the course of civilisation, enabled seafaring journeys, trade routes, and the discovery of new lands and consequently, fostered cultural exchange in the past.

There are a few versions of how compasses were invented. One of them says that Si Nan, which was invented in the Han Dynasty and consisted of a magnetic metal spoon that aligned itself with the Earth's magnetic field, pointing south, was the earliest form of compass. However, according to studies by Professor Liu Bingzheng

from Northeast Normal University in 1956 and by Sun Ji from the National Museum of China in 2005, the device recorded was not a real compass.

While this has been proved wrong, others are more authentic. According to the record in the book *Complete Essentials for the Military Classics* written in the mid-11th century, a guide to fish, which was made by rapid cooling of iron from Curie temperature (about 600°C to 700°C) to room temperature by putting it into water in a specific angle to make it magnetic and sealing it after, was invented in the 4th century. When it is in need, place it on a calm water surface. Until now, you may have been surprised by the intelligence and scientific knowledge of Chinese astronomers and geomancers in the past and their fascinating way of making artificial magnetic compasses. This is far earlier than the compasses made by lodestone discovered by mariners in Europe.

Apart from this, another kind of compass called Luo Pan, recorded by De Barbaris *Oceani occidentalis Annales*, was well used during the period of the Ming treasure voyages, in which Zheng He was ordered by the Yongle Emperor to project Chinese power and wealth to the known world and make other countries as tributaries. It has been an essential factor and reliable tool for the exploration of foreign countries.

Several technical improvements had been made after the invention of compasses. In the book *Brush Talks from Dream Brook* written in the 11th century, Shen Kuo said and proved that compasses did not point exactly to the south, but sometimes a bit biased to the east. His observation preceded the West by 400 years, considering English mariner Robert Norman discovered this phenomenon. Since then, using compasses to tell directions could be even more accurate.

The inventions above seem to bring human-only blessings, but the following one has burdened us. This is gunpowder, which has contributed a lot to scientific, technological, and military advancement, while it has made many people perish and destroyed many structures and artefacts. Still, it was not the fault of the Chinese who invented gunpowder unintentionally. Instead, we should praise the significant impact they have brought us. Think of the tunnels underground or underwater we travel through every day, whether by cars or trains, they are mostly built by using gunpowder to blow the rocks except some new ones adopted more advanced ways.

Gunpowder is believed to have originated in the Tang Dynasty of China before the 10th century. It was originally not invented to facilitate warfare. Instead, Chinese monks and alchemists were questing for an elixir of life when they discovered the formula for making gunpowder. The technology was only used for medicinal purposes until it was found to be incendiary and immediately applied to warfare. In modern chemistry, we know that gunpowder is composed of saltpetre (potassium nitrate), sulphur and charcoal and it was the same in the past although the percentages of its content were not refined at that time. The earliest manufacturing process was simply grinding the ingredients together into a powder using a mortar and pestle.

During the Song Dynasty, Chinese alchemists and military engineers figured out the optimal ratio of saltpetre, sulphur, and charcoal, which ensured replicable, stable, and explosive gunpowder. It was used in flamethrowers in the Song Dynasty and even extended to making fire arrows, which were the prototype of rockets, and thunderclap bombs, which were launched from early forms of cannons during the Yuan Dynasty. You may know that the Yuan Dynasty was established by Mongolians if you have learnt Chinese History. The ambitious and violent Mongolian conquests and invasions of China acted as a vehicle for gunpowder to spread to the rest of the world. It is documented that the technology had reached the Middle East by the 13th century. Sorrowfully, it is the European countries which used gunpowder for their empires, causing countless unnecessary tragedies.

Not only did the Chinese invention of gunpowder help people build structures and explore resources, but it also increased the trading of ingredients and cultural exchange. More remarkably, its combustion and explosive nature indirectly cause people to think about the theory behind it, leading to the chemical revolution and the rapid development of science.

The Four Great Inventions of China have revolutionised many aspects of human history, including the promulgation of knowledge, the technology for extracting resources, the exploration of the world, and the pursuit of science. Now, China, as a great country, is still endeavouring to invent a lot more fantastic new technologies in this extremely interconnected modern world. The innovative spirit and ingenuity of the Chinese, which are exemplified by their lasting inventions, will surely persist in the future, and continue to contribute to the world.

A Day in China, A Day in the Future

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We could never resist soaring our imagination of the ways we will live in the fancy future, couldn't we? Hoping that our tedious, routine daily life could be riddled with fun and excitement with novel breakthroughs, we look forward to the unfolding of future technologies. A piece of electrifying news for everyone is that the wait is no longer needed. China has been inventing and adopting a multitude of futuristic technologies and techniques that no one could have thought of months or years ago. From the early morning till the sky is illuminated with lustrous lights at night, citizens scattered across the 9.6 million square kilometres of land embrace the tremendous convenience and possibilities brought by the New Tales of China's Inventions.

China has a prestigious fame for its Four Great Inventions from the ancient times which comprises compass, gunpowder, paper-making and printing. The four remain to serve as crucial elements for our usual daily life after evolution. Time changes fast, and today, China proudly presents its Four New Inventions to the globe again, namely mobile payment, high-speed rail, E-commerce and bike-sharing, let alone other eminent development projects executed by China such as drones and robots. In this article, we will focus on China's development of mobile payment, high-speed rail, drones and robots.

With just a quick scan using your mobile phone, you know that you have successfully conducted a payment after hearing the 'doo' sound. 'Scan, Pay and Go' This kind of instantaneous payment is no stranger to Chinese citizens as it has penetrated their everyday lives.

This is the transformative power of mobile payments in China, which has constructed a new normal of paying through QR codes for Chinese consumers, especially after the pandemic. Renowned for its cost-effectiveness and secured settings, QR codes have become the leading method of mobile payments in China. While consumers in other countries may still be counting coins or waiting for their credit cards to process, the Chinese are already enjoying the items they bought.

The popularity of mobile payment in China has reached a staggering 86%, which proves that China is the pioneer of the utilisation of mobile payment among other countries and regions. The elevated degree of dissemination and accessibility of mobile payments has promoted its prevalence from luxury shops to street food vendors in China. It is not difficult for us to see shops accepting an array of e-payment methods while travelling outside China. However, we recognise the fact that most of the shops in other places still stick to conventional cash. The divergence among these shops will make you have no choice but to prepare yourself some coins and notes for your journey. By no means is this the case in China, where simplicity and convenience are emphasized. Shops may not be accepting a variety of e-payment methods, but Alipay and WeChat Pay, the two leading enterprises in the mobile payment industry, must be welcomed by every business in the Mainland.

Opening an account on these platforms is easy for not only the locals but also foreigners, let alone using it. As China aims to promote the use of mobile payment technology in every corner, keeping everything simple is beneficial for all stakeholders. Simplicity is the key to the great success of China's inventions. Users could not feel safer and more secure in using these mobile payment platforms, as their privacy is well-protected and user experience is considered the top priority. Users have to go through a real-name verification in the app before successful registration to seclude potential risks and to protect the legal rights of users. The QR code will also be refreshed every time after successful payment has been made and the old one will become obsolete. Personal data is also stored under stringent and close protection. There are no worries regarding embezzlement of QR codes for payments or personal information.

The widespread application of mobile payment technology and its correlated techniques in China are simply marvellous. The Chinese have built a comprehensive system, or I would rather call it a cycle in which you can handle

a bunch of daily matters with just one app. Everything is interconnected. Imagine that you have entered an unstaffed restaurant which has no waiters, no cashier, and no cook. You just have to open the payment app to make an order, acquire discounts, and pay it. Everything could be just done in one app. Then, you only have to sit tight and wait for the robots to cook for you automatically and deliver the food to you which will be explored in the later part. The future technology that is being trialled by China makes things adopted from sci-fi movies possible. Though such techniques have not been omnipresent yet, there are still plenty of new things for us to explore in this inspiring cycle. The Chinese have been endeavouring their efforts in innovation and research of cutting-edge techniques even though they already hold many.

We are used to giving facial expressions to convey our emotions and waving our hands to say hello. As modern technology advances, it is time for us to wave our hands again to say hello to the modern way of e-payment methods invented by diligent Chinese scientists. Simply by waving your palm, your payment has been processed. Welcome to China and welcome to the future, where you could grab and pay for everything you need simply using your hand and palm.

Facial recognition and palm scan payment methods are the most recent innovations of the Chinese. It is commonly acknowledged that all 8.1 billion people in the globe contain unique facial characteristics that could be recognised and distinguished by Computer Vision with the help of Artificial Intelligence and the analysis of Big Data. It is no wonder that these facial characteristics of everyone will be utilised in commercial society someday. However, few of us could have realised that there is also a colossal amount of information disclosed in our palms from our distinctive biological features. Applying this technique in various transportation, campus, catering and retail scenarios, WeChat Pay from China is a trailblazer in this newfangled application. Its palm payment feature incorporates the advanced 'palm print + palm vein' recognition technology. A wide-angle optical camera identifies the palm print features, while the infrared camera identifies palm vein distribution characteristics. Only after the successful verification of both factors could payments be completed. It is fast, convenient and secure.

New mobile payment techniques connect us to the door of the future, allowing seamless and contactless transactions. In a similar vein, China also emphasises connections between the places and people on its 9.6 million square kilometres of land. Its high-speed rail is a profoundly pivotal infrastructure which drives passengers to the door of the future.

Until now, the Chinese have built a high-speed railway network of more than 440 thousand kilometres, with a maximum running speed of 350 km/h on the trains. Domestic travelling in the mainland mainly hinges on this fast and convenient public transport system nowadays, associated with the advantages of being cost-effective and environmentally friendly.

While it may be stunning to recognise that China is considered the most sophisticated country in high-speed rail applications, it is more astounding that China went from nothing to something in the aspect of high-speed rail in just merely two decades. While the Chinese had no choice but to hang on importing essential techniques from foreign countries for the development of its high-speed rail twenty years ago, it has now evolved into a stage of independent innovation with China's one-of-a-kind elements.

Back in the early 2000s, China began its domestic production of high-speed trains through bidding and technology introduction from countries including Japan, Germany and France. The bidding processes allowed China to acquire these advanced technologies by opening its domestic market to the firms. Introducing advanced technology, collaborating on production and creating a Chinese brand name is the major belief adopted.

In recent years, with the concerted efforts of researchers and technological advancements, China has achieved technological breakthroughs in high-speed rail development, becoming a leader in the industry. Appreciation must

be given to China's perseverance in insisting on independent innovation and developing core ideas based on the actual needs and limitations of China's geographical and transportation features.

It is equally notable that China owns a comprehensive production chain, a prodigious manufacturing capacity and construction ability, which have all contributed to the unprecedented success of its high-speed railway system. The 'China speed', which symbolises the accelerated efficiency of both the construction progress and transportation speed of its high-speed trains, is a renowned term in the mainland to praise its achievements in this subject. Only through the complementation of the three aforementioned factors could China build such a marvellous and inter-connected high-speed railway network.

Travelling has never been so effortless in China before the launch of its high-speed railway system. Continuous developments and refinements in various aspects related to the high-speed rail also elevate passengers' experience. For instance, passengers could access one-stop services and preparations for their high-speed railway journey on the app Railway 12306 from booking tickets to checking the latest operating status of trains. Aiming to enhance environmental protection and facilitate the smoothness of operations, the Chinese Railway Authorities have transformed conventional paper train tickets into digital forms, which can be conveniently accessed by passengers through the app. Passengers could simply use their ID card or corresponding travel documents to access the gates. This serves to prevent the loss of tangible train tickets, which could delay the passengers' journey.

It is no wonder that every stage in the high-speed railway development of China is designed and implemented carefully after thoughtful consideration, meeting the authentic needs of the system and stakeholders, especially passengers. From inventions to operations, meticulous planning and design are adopted which maximise the splendour achievements of the high-speed railway system in China. Such delicacy forms an integral part of the mesmerising nature of the New Tales of China's Inventions.

Looking ahead to the coming years, the Chinese will not be limited by the success achieved but to continue breaking through bottlenecks and impossibilities with self-developed contemporary technologies. While the Chinese have successfully invented and tested a high-speed magnetic levitation train system with a speed of around 600 km/hour in 2021 in Qingdao, which is the fastest-moving transportation tool on the ground, more is expected to come shortly. The maglev is a product of the independent research and development of China, which also upholds the advantages of being unaffected by the hindrance of external factors such as friction, gravity and air pressure. China also sets to test a 1000 km/h ultra-high-speed maglev train, which will be used for commuting between mega-city clusters in China in the coming decade. By 2035, it is expected that this hyperloop technology will be put into practice. The maglev train will operate in an in-vacuum tunnel which could effectively truncate the travelling time required. Connecting Shanghai and Hangzhou in less than ten minutes, this state-of-the-art technology could foster citizens' geographical mobility, creating substantial benefits for the development of the cities and the country holistically.

Emerging into an automated and smart society, Chinese firms have been enhancing the applications of robots and drones in various aspects of production and daily operations to eliminate the dependence on human labour. Robots and drones give an edge over human workers in terms of accuracy, efficiency and productivity, which are indispensable features for the formation of a futuristic society.

Apart from the conventional manufacturing and industrial industry that utilises robotic process automation in factories, there is a surge in demand for diligent robots in not only the medical and catering fields but also interactive robots that could guide customers in the service sector. The Chinese University of Hong Kong has invented a surgical robot which could undergo urological surgeries. It is expected that the robot will be widely applied on the mainland in 2024 after several clinical trials. The precision for the surgery is augmented and the time required is reduced considerably.

In light of the technological advancements and a growing labour shortage in the catering industry, there is a heightened application of robots in the workplace. Be it the reception or the cooking process, it all lies in the operation of robots solely. Taking a chained restaurant invested by Country Garden which operates in the Greater Bay Area as an example, the entire flow of the work in the restaurant is replaced by artificial intelligence robots. The cooking robots are only secluded by a piece of transparent glass from the customers, which enables customers to observe how advanced the cooking process is. It strengthens their confidence and understanding of this new technology. The cooking robots are equipped with the ability to prepare a wide variety of food, for instance, claypot rice, ice cream and noodles to meet the varied tastes of various customers. The well-prepared food will then be transported to the customer's desk through an overhead track system. This futuristic dining experience riddled with advanced technology comprises a total of more than 200 dishes for the customer's selection. The meals are prepared and delivered to customers within an astonishing time frame which takes merely 20 seconds at least. Such an automated cooking process could minimise the possibility of food contamination caused by humans, ensuring an outstanding level of hygiene and safety. Applications of robots are also more widely adopted in service industries such as hotels and hospitality. Without a doubt, robots are becoming more important tools to customers in the mainland market, facilitating customers' experiences while refining efficiency.

The pandemic has reshaped our everyday life in many aspects, and the most significant change is that we are getting more used to ordering food delivery services from home. In China, delivery services have evolved into a new era during the pandemic in which drones could replace the usual riders' work. This remote delivery mode, which is adopted by Meituan, the largest delivery platform in China, is more than ubiquitous to spot in central cities in China such as Shenzhen and Shanghai. Under the command of an automated system, a delivery drone carrying the food will take off to deliver to a designated airdrop pickup kiosk. Travelling a maximum distance of 10 km in urban areas, the delivery drones could withstand unfavourable weather conditions such as heavy rain and wind. They are also enabled to make on-time deliveries as the hindrance effect of traffic congestion would vanish. This new norm of delivery is expected to bolster the rapid development of the low-altitude economy in Shenzhen, which is one of the emerging industries in this smart city. The low-altitude economy refers to the concept of utilising aerial vehicles such as drones for commercial transportation and logistics services in dense urban areas. It is forecasted to be a paramount factor of contribution to the engine of the new economy.

Since we embarked on the 21st century, China has been accelerating its development to become one of the top-notch nations in the globe with laudable technological breakthroughs. The world is amazed again and again by the creativity of the Chinese and its splendid history of innovations from ancient times to the present. The user-centred designs and wide applications of these innovations have made the everyday life of the Chinese to become easier, more convenient and futuristic. It is my strong belief that more debuts of Chinese technological innovations will be demonstrated in the foreseeable future, which could transcend the limits of our imagination in all likelihood.

Chinese Inventions: The Past, Now and The Future

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China, a mighty country with a history of over 5000 years, has a lot of precious physical and spiritual legacies which reinforce our standard of living in modern society. Flipping through the gallery of China's achievements, those cutting-edge inventions should be placed on the podium of the most glorious kinds of the nation.

When we mention Chinese invention, I bet the memory of the four great inventions will be aroused in everyone's mind. The eminence of them is not about how eye-catching and fascinating they are. These innovations have one collective characteristic which is decisive to their popularity and commendations, which is that they all change human lives slightly, to a degree that we may not recognize. However, our lives are genuinely altered, either to a brighter future or to a grim dystopia.

Past

Being one of the four great inventions, paper making would be a skill that improves our lives most. Could you count how many products that surround our daily life are made of paper? For a student, they could be textbooks, comics or novels; for an adult, they could be documents, reference materials or important hardcopies of contracts. Thanks to the plain and snowy white paper, we can have every word printed while being visible. Nevertheless, can you imagine what would happen if once the technique of paper-making vanishes?

Let's go back to the ancient world thousands of years ago. Before paper was invented in China, people around the world used various types of materials to record their culture and history. The one with the best fame would be papyrus, which was developed by Egyptians in around 3000 BC. Made of papyrus plant, however, it was not pliable enough to fold without cracking, also fragile and susceptible to both moisture and excessive dryness. Other materials such as parchment, palm leaves and tapa were used all over the world. The reason why they were all with very short lives was that most of their surfaces were irregular, which was difficult to write on and the use of them was often with constraints such as environment and climate.

Therefore, here we are to trace back to 105 BC in China. In the past, it was a traditional practice that every book and document was to be written on bamboo and wooden slips. These bamboo slips were ponderous and not flexible enough to be carried everywhere. Envision when you are reading an enchanting book but it is time to go back home. Would you like to carry loads of bamboo slips to your home? Later, a better alternative—silk and cloth seemed to have addressed the issues properly. However, they were indeed very expensive and ordinary people couldn't afford a bulk amount of them. Cai Lun, a eunuch, was initiated to improve these media and was determined to invent a light and cheap one. He boiled materials namely bamboo, hemp waste, old rags, fishnets and bark from trees to a pulp that was beaten with a wood or stone mallet and mixed them with a large amount of water. After processing with wooden sieves and removing excess water, 'paper' was formed. To commemorate his achievement, this paper was called 'Cai Hou Paper'. No sooner had Cai invented this easy and cheap paper-making method than it went viral all over the world. In 600 AD and 610 AD respectively, paper-making expanded to Korea and Japan. It also travelled to the West on a journey very similar to the Silk Road, from Central Asia to Samarkand in Uzbekistan.

Another significant invention of the four great inventions could be mentioned together with paper making, which is movable type printing. Effective printing was a long eagerly awaited desire of ancient Chinese. Chinese, unlike English, already has over 10000 different characters in the Tang Dynasty. Relying on human-written books is not only time-consuming but also expensive to produce and unfavorable regarding on distribution of knowledge. Therefore, the Chinese worked hard on inventing different printing methods. Woodblock printing, known as xylography today, was the first method of printing applied to a paper medium. Since carving the blocks is skilled and laborious work, and if one character is mistakenly carved, the whole woodblock has to be discarded and everything needs to be carved again. It is a waste of manpower and a drain of resources, isn't it? Bi Sheng, an artisan and

engineer in the Song Dynasty, had a great and detailed overview towards the pivotal drawback of woodblock printing and thus invented a brand new method called 'movable type printing' in 1041. Bi Sheng took sticky clay and shaped it into the Chinese character that was going to be used. When he wished to print, he could just take an iron frame and set those character models on the iron plate, slightly burn them and put the medium to be printed on the plate. Eventually, words were printed uniformly and clearly on the medium used. The skill was later spread around the sinosphere including Korea and Japan. Metals were used to replace clay as a better alternative. Until typesetting with computers became prevalent in the 1900s, movable type printing was abandoned and retired out of our sight. Doubtless to say, Chinese inventions on paper and printing have brought unprecedented impacts to the world. Jim Rohn, an American motivational speaker once said 'reading is essential for those who seek to rise above their ordinary.' Books are a crucial medium to carry and propagate the culture and language of a nation. Without paper and methods of printing, we are not able to get in touch with diverse knowledge in the world. Most people may take these for granted and neglect the efforts behind these inventions. That's the reason why I mentioned that we may have overlooked the impacts of these Chinese inventions.

The second-last great invention is the compass. It was actually invented in China during the Han Dynasty between the 2nd century BC and the 1st century AD. Compass, at first, was not used for navigating. It is related to the concept of 'feng shui', a kind of esoteric geomancy that claims to use energy forces to harmonize individuals with their surrounding environment. The prototype of the compass is called 'si nan'. It is made with lodestone, a form of the mineral magnetite that is a naturally occurring magnet and aligns itself with the Earth's magnetic field. The middle of 'si nan' is not a needle like a compass, but a spoon-like object. You may wonder why it must be spoon-like, and the answer is related to the Big Dipper, a large asterism consisting of seven bright stars. In the past, as the Big Dipper was quite prominent and easy to recognize, ancient Chinese used it to clarify their direction. Also, the Big Dipper is one of the most important references for fortune teller to do their divination. Hence, when the Chinese discovered that the magnet would always point toward the magnetic poles, they tried to imitate the shape of the Big Dipper during the manufacture of the magnet. In the end, a spoon-like object was crafted. 'Si nan' had also become essential equipment for 'feng shui' gurus to make their judgements until now. Later, 'si nan' was transformed into a compass in the Song Dynasty by the military for navigational orienteering by 1040-44. The invention of the compass made an indispensable contribution to the Age of Discovery by enabling mariners to navigate safely far from land. Within China, the invention of the compass helped with the development of the maritime Silk Road. The maritime Silk Road connected China to Persian and Arab traders to export a lot of China's products towards other countries such as porcelain, spices and herbs. Not only does it help boost China's economy, but it also facilitates cultural communication between China and Southeast Asia countries. This can also account for the Chinese's spirits on inclusion and racial integration.

Last but not least, we have gunpowder as an invention that has affected us much. Sun Simiao, king of medicine in China had mentioned in one of his books that 'mixing sulphur, saltpeter will form a substance that catches fire. However, since some Taoist alchemists were obsessed with the elixir of immortality, they still tried to mix them with carbon to see what would happen. Eventually, as gunpowder couldn't bring them eternal life, it was taken for military use. The earliest surviving chemical formula of gunpowder dates to 1044. As a result of the Mongol conquests during the 13th century, knowledge of gunpowder spread rapidly throughout Asia and Europe. Besides peaceful usage like matches and fireworks, gunpowder was used for a more violent and brutal purpose: weapons. The explosive and flammable nature of gunpowder had been specifically attractive to strategists. Since then, canons and guns have predominantly occupied the field of war, replacing swords and trebuchets. This invention was innovative and pristine enough, but it was definitely a double-edged sword. We could use it for celebrative purposes such as firecrackers as one of the Chinese traditions, or military purposes, which is disapproving.

Spirits behind

The four great inventions have clearly demonstrated personalities that most Chinese own. British Sinologist Medhurst once said 'the Chinese people's genius for inventions has manifested in many aspects very early' in his book 'China, its State and Prospects'. This comment refers to the four great inventions. As described above, we know that these

inventions are prompted by certain challenges, for instance, economic issues faced when using bamboo strips, convenience issues faced when using silk, etc. When these challenges are here as an obstacle faced by the Chinese, they wouldn't give up trying. Instead, they would make use of what they had learned in the past. Through thousands of trials and errors in order to achieve or come up with a solution. In ancient China, the belief that is rooted in the Chinese mind would be Confucianism, which focuses on the importance of personal ethics and morality. Scholar Xunzi once said 'Learning cannot be stopped' in his famous article 'Exhortation to learning'. Obviously, learning was of paramount importance to the Chinese. Having this attitude, when they have any new and innovative ideas, they can manage to accomplish them step by step with concrete and reliable knowledge.

There is also a reason why the Chinese could be that creative in inventing such useful products. Chinese have a curious soul in discovering the structures and mechanisms behind the world. In fact, the number of myths in China transcends those in foreign countries. Chinese love to find an explanation towards everything in the world. For example, the reason why there is only one sun in the sky would be that Houyi shot the other nine suns down because of the extremely hot weather. Everything you could imagine, from heaven to hell, has its own story relating to different gods. Books such as 'Strange Tales from Liao-zhai' or 'Journey to the West' also show the imaginary world in the Chinese brain. Undoubtedly, the Chinese aren't fearful towards these unknowns or uncertainties. Furthermore, their perseverance in overcoming these unknowns should be praised and learned. Combining these with the Confucian or Mohist belief – to love and treat everyone well, it is not difficult to know why the Chinese could invent so many beneficial products for the world. Gunpowder could be an exception, but it depends on how we use it. We couldn't deny that it indeed brought some advantages to our lives by providing things like fireworks. It also stimulated some kinds of new technology.

Now

After the Chinese economic reform, everything is going back on track. However, it seemed that the Chinese didn't get back their spirits for a while. A few years ago, some scandals had built some distrust towards Chinese new inventions. One of the biggest ones was the 2008 Chinese milk scandal. Once everyone thought that the Sanlu Group had invented a type of cheap and nutritious milk powder and was proud of it. However, it was soon discovered that the milk was adulterated with the chemical melamine, which would result in kidney stones and other kidney damage. Many Chinese and many foreigners couldn't trust Chinese products anymore since this scandal broke out.

The history of Chinese inventions may contain marvellous stories such as the four great inventions, or scandals that deteriorate Chinese products' credit. Nonetheless, the spirits of the Chinese are always in their blood, existing at any moment. After the scandal broke out, the Chinese government worked hard to monitor the quality of Chinese products in order to rebuild the confidence of people in them. Chinese haven't and never give up on making new inventions. In the past ten years, every Chinese enterprise strived to innovate so as to grasp the opportunity to compete with foreign tycoons. They cling to create something that nobody has tried before. Not only because of making money, but also to restore national glory and bring more and more unbelievable creations to the sight of people around the world.

Particularly, I would like to mention a few inventions that swamped the global market in recent years. One of them must definitely be 'short videos'. TikTok, established seven years ago, introduced a new concept of videos to the world. In the past, we usually watched long YouTube videos by turning our phones horizontally. Also, we often have to spend a few minutes to finish watching one single video. Under such circumstances, it is not likely that we could finish it without pausing in the middle. This offered dissatisfied experiences to users. Chinese entrepreneur, Chang, spotted this problem faster than anyone else. He predicted that everyone would own a phone in the future and thus stepped into the technology industry. With his clear mindset, he established 'Toutiao' and 'Tiktok' respectively. Both of them were to offer users quick and targeted information. And now, different social media adopted the same techniques, such as YouTube's 'shorts' and Instagram's 'reels', they all originated from Tiktok's short videos. To have a successful creation that could be widely accepted around the world, the crucial condition is that the

inventor clearly understands the demand of the market. As Chinese can learn new things rapidly, they can in fact have a clearer image and thus could put themselves into others' shoes. Inventing something that customers want. This is what we should learn about and take advantage of.

In recent years, Chinese enterprises often faced sanctions by foreign countries such as the United States, especially Huawei. The daughter of the CEO of Huawei was even arrested by the Canadian government. However, Huawei showed its spirit of perseverance with its innovative nature. When Android no longer supported Huawei, it invented its own engine called 'HarmonyOS', which is functioning well. What everyone should learn from this is that invention is a one-way path and stopping is not allowed. Whenever we faced obstacles, we couldn't just give up our project directly as there must be another way that could work exactly or even better than the original one. Invention is not only about creativity, but it's more about persistence. We may not see the bright side of the tunnel as there is still a long way until the end, but we have to remain committed to what we believe in. One day, we could eventually make it to our long-awaited products. Chinese, as the 'descendants of the dragon', must know this very well.

Future

China has held a place in different fields such as astronomy and artificial intelligence. It is believed that China can continuously proceed with further inventions on things such as spaceships that can carry tourists to space or artificial intelligence that can chat with people normally like a human. Despite the fact that China has a promising future in innovation, young people in China are facing severe social issues. In China, although the economic growth is significant, it doesn't really benefit young people. As most of them are poor, they are not able to achieve their dreams and can only tolerate the long '996' working schedule. At last, they choose to stay at home and become a lying-flat in response to the emotionless society. The Chinese government has to tackle this problem by providing more support to young people as they are the pillars of society in the future. Without their ideas, it would be difficult to keep China as an innovative country.

From my own perspective, the successful stories of all inventions in China are really encouraging. It would be fabulous if I could become one of them one day. However, even though the government provides a lot of support to Hong Kong youngsters to work on innovations, the details are still not very clear. It is about time the government exposed more statistics reflecting the current situations in the Greater Bay Area so that people could understand the feasibility of achieving their dreams there.

Living in the 21st century, we should be grateful that we are able to enjoy the fruits of the great inventors of the past. Indeed, these inventions improve our lives a lot. We should also be honoured to be one of the Chinese as our ancestors had completed works that may have changed the world. Being Chinese, and also a member living in the world, we should try our best to contribute to our beloved society. Maybe we are not creative enough to invent new products, but we can learn from their spirits and finish our jobs in a favourable manner. No matter we are an inventor or not, we can still make our steps and change the world slightly. Let's prove that the Chinese are not the 'sick man of Asia' by our own efforts.

A Glimpse of China's Future in the Tech Field

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In the past few decades, China has grown significantly and become one of the most technologically advanced countries in the world. As a Chinese, I am very proud of my country's astonishing achievements. China has one of the fastest-growing electric vehicle (EV) markets with an estimated 300 domestic EV manufacturers. Moreover, China has the largest network of high-speed railways in the world, with a total length of 42000 kilometres. In 2021, the China National Space Administration (CNSA) sent Tianwen-1 to explore the Red Planet, making China the third nation to make a soft landing on the Martian surface. Looking back, our nation has really outdone itself again and again, creating a myriad of mind-blowing inventions that have influenced not only the 1.4 billion people in China but the whole population that walks the earth. I can't help but wonder what comes next for China. I'm not a fortune teller but I bet it's going to be something mind-altering!

In the 1989 film *Back to the Future II*, the protagonist Marty McFly travels to the year 2015 where futuristic travelling means such as hoverboards and flying cars have become prevalent. It is quite intriguing – how the world in 2015 looked like to the film writers in the 80s. Of course, we know that hoverboards and flying cars are not a common sight you see every day on the streets. However, I believe that China will be introducing more innovative means of transportation shortly. What I want is a teleportation device. If you ask me who's going to be able to invent such an unimaginable piece of technology, my answer would undoubtedly be Chinese people! In recent years, I've been seeing plenty of fascinating gadgets and gizmos made by Chinese firms, from aesthetic phone cases to handy kitchen gadgets. From all these products, I can see China's boundless creativity, and I believe that this creativity is what it takes to invent a teleportation machine. With this technology, I wouldn't be late for school anymore!

In my mind, digital currency is going to take over the traditional payment method of cash in the future, and the first country that's capable of undergoing this major transformation is going to be our great nation. China is already ahead of other countries by introducing digital wallets like WeChat Pay and Alipay as early as 2003. By now, digital wallets have become the most common method of payment in China, so the Chinese are no strangers to digital currency. In addition, Chinese companies have been developing facial recognition technology. For instance, in Guangzhou Children's Library, the facial recognition system is used for children to borrow and return books without having to take their library cards with them. Besides, businesses in China have experimented with using facial recognition for payment in convenience stores – the ultimate payment method using digital currency in which the payer does not have to bring banknotes or smartphones with them. Since China has already been testing the water for a while now, I have faith in our country that it's going to invent a secure nationwide facial recognition system so that we can pay for purchases empty-handedly shortly. With this system, our lives are going to be a lot more convenient!

As a Biology student, I am very interested in the development of Biotechnology so I really can't help imagining what impressive biotechnology China's going to introduce in the days to come. In 2018, two monkeys – Zhong Zhong and Hua Hua – were cloned by a Chinese laboratory, becoming the first monkey clones created. This example shows that China has been quite advanced in the field of biotechnology. In light of this, I believe that China would be capable of bringing back animals that have disappeared from the face of the earth. Are you thinking what I'm thinking? I believe you are. China has been a pioneer in biotechnology, and would it be possible for it to bring back creatures that have gone extinct – like DINOSAURS? I think that my motherland has the potential to do so – with limitless creativity and state-of-the-art technology. Let's put aside ethical concerns and just imagine. Being able to revive something that vanished from our world 65 million years ago, that's a huge deal! Who wouldn't drool to take a look at these magnificent creatures and gawk with amazement? I believe that China's emphasis on the development of biotechnology is going to be able to achieve something as breathtaking as bringing dinosaurs back to life.

Recently, I watched a film which was about a couple making use of the technology of artificial wombs to have a baby. This thought-provoking film made me think about whether this technology would be feasible. I've done some research and found that China has already been trying to combine artificial wombs with artificial intelligence (AI). Imagine if China could put artificial wombs onto the market. Millions of women would benefit. Over the past decades, China's birth rate has been dropping continuously. One of the reasons for the decline in the birth rate is that women are reluctant to have children as the processes of being pregnant with a child for nine months and giving birth are too agonising and arduous. However, with the use of artificial wombs, women no longer have to go through that excruciating experience in order to have a child. That sounds like music to my ears! With the introduction of this

technology, I believe that many more women would be willing to have children and the birth rate in China would definitely rise.

There's no doubt that China's going to come up with many more spectacular inventions in the future. Perhaps we are going to have time machines or we can travel to Neptune in a spaceship. We do not know for sure. But I do know that the new inventions are going to be exciting and incredible, and I cannot wait to see what the future holds!

Exploring China's Contributions to the Metaverse: Uncovering the Gaming Innovations that Redefine Virtual Realities

Queen Elizabeth Secondary School Alumni Association Tong Kwok Wah Secondary School, Cheng, Ka Wai – 15

Games have long been recognized as a form of entertainment, but their significance extends far beyond mere amusement. In fact, games hold a unique position as the ninth art form, intertwining with various aspects of human life. From their ability to captivate and engage individuals to their impact on social interactions and personal development, games have become an integral part of our daily existence. Games also have proven to be powerful tools for personal development. They stimulate cognitive functions such as problem-solving, critical thinking, and decision-making. Strategy games, for example, require players to analyze complex situations, devise plans, and adapt to changing circumstances. Additionally, games can enhance creativity and imagination, as players often have the opportunity to shape and create their own virtual worlds. Notably, games have also found their way into various fields beyond entertainment. They are increasingly utilized in education, training simulations, and even therapy. Serious games are designed to educate, teach skills, and address real-world challenges in an interactive and engaging manner. These games leverage the inherent motivation and enjoyment derived from gameplay to facilitate learning and personal growth. Obviously, games as the ninth art form play a significant role in human life. They provide an avenue for escape, foster social connections, and contribute to personal development. As we continue to embrace the ever-evolving landscape of games, it is essential to recognize their importance and harness their potential to enrich our lives in numerous ways.

China's massive population of over 1.4 billion people means it has the world's largest potential market for the gaming industry and digital entertainment. With so many consumers located in one country, China presents immense opportunities for growing the scope and profitability of games. Not only is the population size favorable for the gaming sector, Chinese society has also embraced new technologies that boost access and spending on games. Beyond conventional commuting needs, innovative electronic payment solutions have become widely adopted in China. Options like Alipay and WeChat Pay have made conducting financial transactions via mobile incredibly convenient. This proliferation of contactless and digital payments lays ideal groundwork for the gaming industry value chain from hardware purchases to in-app spending. Game companies no longer face the same barriers and inconveniences of traditional payment processing that hampered some businesses in other markets. China's early embrace of fintech has substantially increased the ease of monetizing games and enabled new business models. In parallel, China's government and Internet giants have proactively invested in building domestic gaming capacity and promoting the industry. Its initiatives range from talent training programs and regional technology clusters all the way to creating the infrastructure needed for esports tournament venues and streaming platforms. Chinese game developers also benefit from robust protection of intellectual property unlike some other Asian markets. The thriving gaming sector has become an influential part of the country's digital cultural and economic transformation with expanding opportunities for global partnerships and trade.

China has an extensive history of inventions and innovations that have greatly contributed to the development of various fields, including technology and gaming. Over the years, China has been at the forefront of creating new tales in the world of gaming, introducing exciting and engaging inventions that have captivated millions of gamers worldwide. One of the most prominent new inventions in Chinese gaming is the Massively Multiplayer Online Role-playing Game (MMORPG) genre. MMORPGs allow players from around the globe to interact with each other in a virtual world, creating a sense of community and camaraderie. China's contribution to this genre can be seen through games such as "The Legend of Mir" and "World of Warcraft", which were developed by Chinese companies and gained immense popularity across the globe.

All of these lay a good foundation so China's gaming industry has witnessed exponential growth over the past decade. With a large population of avid gamers and a robust infrastructure to support the industry, China has become a major player in the global gaming market. Chinese game developers and companies have created some of the most successful and innovative games, attracting millions of players worldwide. The revenue generated by China's gaming industry surpasses that of any other country, making it a powerful force to reckon with in the global gaming landscape. China has been at the forefront of gaming innovations that have shaped the Metaverse. Chinese game developers have introduced groundbreaking technologies and gameplay mechanics that have transformed the gaming experience. One notable example is the game "Genshin Impact," developed by miHoYo, a Chinese gaming company. The game combines open-world exploration, role-playing elements, and multiplayer interactions, creating a captivating gaming experience that blurs the line between reality and the virtual world. "Genshin Impact" has garnered a massive following worldwide, demonstrating China's ability to create immersive and engaging virtual realities.

Genshin Impact is a popular open-world action role-playing game originally developed by the Chinese company miHoYo. Since releasing in late 2020, Genshin Impact has gained a massive global fan following across platforms like iOS, Android, PlayStation, and PC. As a Chinese-created game, Genshin Impact demonstrates the thriving creativity and world-class production values coming from the country's gaming industry. Genshin Impact's success is unparalleled, achieving significant download records on app stores worldwide. Within just two months of its mobile launch, the game surpassed \$100 million in global player spending. On iOS alone, it became the fastest title to reach \$300 million in global player spending, demonstrating incredible mainstream popularity. Genshin Impact's cross-platform model allows the same account and progress to seamlessly carry over between devices, promoting extensive engagement and playtime from fans. A core reason for Genshin Impact's enthusiastic fan reception internationally is its immersive open-world design featuring sprawling magical landscapes to explore. Very much embodying the vision of a metaverse, the game invites endless discovery and adventure. Players embark on quests to advance the elaborate storyline while collecting powerful characters from diverse civilizations. Genshin Impact has established a strong foothold as a cultural phenomenon appreciated across borders. It indicates global audiences have diverse tastes and are growing eager to engage with high-quality games born anywhere in the world. "Genshin Impact" has not only revolutionized the gaming industry but has also showcased China's potential to lead the way in shaping the Metaverse.

In recent years, the concept of the Metaverse has gained immense popularity in the gaming industry. The Metaverse refers to a virtual reality space where users can interact with a computer-generated environment and other users in real time. This revolutionary concept has the potential to redefine how we experience digital entertainment, social interactions, and even work. China, with its booming gaming industry and technological advancements, has played a significant role in shaping the Metaverse. The Metaverse is a virtual reality space that encompasses various interconnected digital worlds. It is a convergence of augmented reality (AR), virtual reality (VR), and the Internet. The key components of the Metaverse include immersive experiences, social interactions, user-generated content, and a seamless integration of physical and digital realities. Users can explore and interact with the Metaverse through virtual reality headsets, mobile devices, or desktop computers. The concept of the Metaverse has gained traction due to its potential to revolutionize gaming, entertainment, education, and even business. China's technological advancements have played a crucial role in the evolution of the Metaverse. The country has made significant strides in areas such as artificial intelligence, virtual reality, and 5G connectivity. These advancements have laid the foundation for the seamless integration of physical and digital realities in the Metaverse. Chinese companies have developed state-of-the-art virtual reality headsets, motion sensors, and haptic feedback devices that enhance the immersive experience of virtual realities. With the advent of 5G technology, users can now access the Metaverse with minimal latency, enabling real-time interactions and multiplayer gameplay on a massive scale.

On the other hand, several technology giants like Tencent and NetEase are heavily investing resources into building metaverse platforms. Local governments have also designated metaverse development as a strategic national priority,

exemplifying high-level support and investment. With these considerable efforts, it's probable that China will cultivate its own metaverses distinctly representing Chinese cultural perspectives and interests. While taking inspiration from early Western metaverse projects, incorporating elements from millennia of Chinese philosophy, art, history, and customs could create experiences that deeply resonate with domestic audiences. For example, virtual recreations of iconic destinations ranging from the Forbidden City to the Great Wall may be coupled with integrated elements of tai chi, calligraphy, shadow puppets or food. Employing classical Chinese aesthetics in the design of virtual goods, assets, and avatars allows users to express themselves through a cultural lens they feel pride and connection with.

Narratives and storytelling taking place within China's metaverses could also spotlight uniquely Chinese folklore, mythology, and modern stories. Interactive learning experiences might bring Confucian classics or Ming dynasty scientific achievements to life. Using cultural sophistication and soft power benefits the nation by introducing global audiences to the richness of Chinese civilization through a digital medium people are eager to engage with. As the metaverse continues maturing, seeing aspects of Chinese culture seamlessly woven into virtual worlds will make them feel like home to domestic users. China's rich gaming culture has had a significant impact on the development of virtual realities in the Metaverse. The country has a long history of gaming, with traditional games like Mahjong and Go deeply ingrained in its culture. This gaming heritage has influenced the design and mechanics of modern virtual reality games. Chinese game developers often incorporate cultural elements, folklore, and aesthetics unique to China, creating an immersive experience that resonates with both domestic and international players. The fusion of traditional Chinese culture with cutting-edge technology has resulted in the creation of virtual realities that are both visually stunning and culturally rich.

Video games have been experiencing unprecedented growth worldwide across time. As technology has advanced, gaming has evolved as both a leading form of entertainment as well as a profitable sector stimulating economic development. Overall, the prospects for gaming continue strengthening on the backs of rising player counts, new markets, and evolving technologies. While certainly facing challenges along the way, the industry's growth trajectory looks poised to endure and even accelerate in the years ahead. For over 2 years now, the pandemic has impacted societies extensively, shifting daily habits, priorities, and technologies at the center of life. Amidst lockdowns and social distancing, digital entertainment served as a welcome escape for billions confined to their homes. Gaming platforms especially saw record engagement levels which helped sustain businesses and bring joy and connection to isolated individuals. This amplified the recognition of gaming's socio-economic value while also expanding the customer base with new and returning players. It drove the realization that online interaction nourishes important human needs.

Moving forward, the connectivity between physical and virtual worlds will fuse further through technological progress and shifting user expectations. Immersive technologies like virtual and augmented reality place gaming at the forefront of our impending interactions. Established gameplay franchises too will move boldly into new genres and platforms with each new generation of hardware and Wi-Fi standards. From ambitious virtual worlds to competitive esports, gaming culture's worldwide footprint and devoted subcultures show no signs of slowing their integration into mainstream entertainment. As the concept of the Metaverse gains momentum, China has the potential to lead the way in its development and implementation. With its vast gaming industry, technological advancements, and cultural heritage, China is well-positioned to shape the future of virtual realities. The country's innovative game developers and companies continue to push the boundaries of what is possible in the Metaverse, creating immersive and engaging experiences that captivate players worldwide. By leveraging its strengths and embracing collaboration with international partners, China can pave the way for a future where the Metaverse does indeed become an integral part of our daily lives.

Experience the immersive world of the Metaverse and discover the gaming innovations that are redefining virtual realities. Join us on this exciting journey and explore China's contributions to the evolution of the gaming industry. Let's dive into the Metaverse together!

When Fantasy Shines into Reality

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Most people know that paper and gunpowder were invented in ancient China, but do not realize that so many other things we use today, ranging from food to transportation means, have been invented by different methods.

Nowadays, Chinese tech-giants and pioneers have researched countless inventions that can affect people's lives, including high-speed rail, digital payment, online shopping, bike-sharing and so on. What's more, smart cities, metaverse, moon hotels, and flying bags are also conceivable.

To begin with, one of the new Chinese inventions is the high-speed rail. It is a type of transport network utilizing trains that run significantly faster than those of traditional rail by using an integrated system of specialized rolling stock and dedicated tracks. While there is no single standard that applies worldwide, lines built to handle speeds above 250 km/h or upgraded lines over 200 km/h are widely considered to be high-speed.

High-speed rail is the fastest and most efficient ground-based method of commercial transportation. However, due to the requirements for large track curves, gentle gradients, and grade-separated track the construction of high-speed rail is more costly than conventional rail and therefore does not always present as economical. Nevertheless, it is still a good choice of transportation for people, since it has a huge passenger capacity that can transport many passengers.

If the journey does not originate and arrive in a megacity center or an overly remote location, the time taken to use the high-speed rail plus the transfer may be similar to driving a car. However, high-speed rail is more comfortable without having to drive yourself. In addition, the frequency of high-speed rail can be higher, and the total passenger capacity is also higher than that of civil aviation, but its noise nuisance to residential areas may affect the frequency of trains at night.

The Express Rail Link connects Hong Kong to 73 stations in the Mainland, with short-distance trains to Shenzhen, Dongguan, and Guangzhou, as well as long-distance trains to more distant destinations such as Xiamen, Shanghai, and Beijing. If people transfer to other high-speed rail trains along the way, they can also travel to more destinations along the national high-speed rail network. It can go directly from Hong Kong to the Mainland so that people don't need to transfer afterwards, and just take a high-speed rail to arrive at the destination.

It is very convenient for passengers and commuters who need to travel between Hong Kong and China frequently. It provides them with faster transportation, so that they can spend less time commuting and save time to handle work. The time saved can be spent on preparing for meetings and reports which enables commuters to work more efficiently, even whilst on the journey.

On top of the invention of the high-speed railway, digital payment is also another great invention for the time being. It is the transfer of value from one payment account to another using a digital device or channel, such as a mobile phone, computer, or a credit, debit, or prepaid card. Digital payments provide numerous benefits to people.

Firstly, digital payment can reduce transaction costs. Digital payment methods have the advantage of being faster, safer, easier to collect, and less expensive for the business. By incorporating electronic payment methods into businesses' account payable process, the accounting department can realize savings on every invoice, which is a great way to keep a reliable record of one's spending.

Secondly, digital payment can secure payment transactions. Electronic payments are much more efficient and safer than their traditional paper-based counterparts. Electronic payment methods and systems offer multiple ways of

securing one's payments, such as payment tokenization and encryption. If one's phone is lost or stolen, others could not access his or her e-wallet without authentication.

Thirdly, digital payments can also save time and resources. They are much more convenient than cash or checks. People can make payments from anywhere, at any time, with just a few taps on their mobile phones. This is especially helpful for people who are on the go or do not have easy access to banks or other financial institutions.

With the improvement of science and technology and economic prosperity, electronic payment came into being and has gradually become an indispensable payment method in people's daily lives. Based on the data collected in 2021, the Bank of China processed a total of 274.969 billion electronic payment transactions, an increase of 39.744 billion transactions from 2020, a year-on-year increase of 16.90%.

It is believed that digital payment services like Alipay have significantly transformed the way people conduct financial transactions. They offer convenient and secure methods for making payments, eliminating the need for physical cash or credit cards. Furthermore, digital payment services like Alipay have contributed to the growth of e-commerce and mobile commerce industries. They have enabled individuals to easily purchase goods and services online, expanding business opportunities and fostering economic development.

Apart from high-speed railway and digital payments, online shopping is another form of Chinese innovation that allows consumers to directly buy goods or services from a seller over the Internet using a web browser or a mobile app. Online shopping is flexible. It is without time and location limited so people can shop anytime and anywhere. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers.

Except for the flexibility, it can help people make big saves. They can save fuel, energy, as well as time when opting for online shopping. There is no need for them to move anywhere. The only thing they have to do is to tap their fingers on the phone screen. In online shopping, people can easily compare the prices of different products from different sites. Moreover, online shopping sites offer various good deals and discounts to their customers during festive seasons, which can help shoppers save much money.

Looking at it in whichever way, shopping online is convenient and suitable for slothful people. I believe that if we use online shopping apps intelligently and carefully, it will be a great choice for us. Besides, I assume the online shopping model will be soon promoted all over the world because people are more inclined to shop online than in physical stores, which has saved a lot of hassle, as well as making people more willing to shop.

Aside from that, bike-sharing is another Chinese innovation that is currently in effect. It refers to a shared transport service where bicycles are available for shared use by individuals at low cost. In July 2020, Google Maps began including bike share systems in its route recommendations. The programs themselves include both docking and dockless systems, where docking systems allow users to rent a bike from a dock, a technology-enabled bicycle rack and return at another node or dock within the system – and dockless systems, which offer node-free systems relying on smart technology. In either format, systems may incorporate smartphone web mapping to locate available bikes and docks. Bike sharing can alleviate urban air pollution and reduce road congestion during peak hours in the morning and evening. Plus, using shared bicycles as a daily commuting tool can help users increase daily exercise volume of the citizens.

The aforementioned four inventions are the examples of innovation found in China. What about the inventions that may be found in the future? Read on to find out more.

One of the possible future inventions in China would be the smart glasses. They are eye or head-worn wearable computers that offer useful capabilities to users. Many smart glasses include displays that add information alongside or to what the wearer sees. Smart glasses perform different functions, for example, they can add events, map navigation, interact with friends, take photos and videos, play music, start video calls with friends, and other functions through voice or motion control. In addition, it comes with a real-time translation feature that translates more than 100 languages. Users can also see real-time subtitles. For instance, when one finds the professor's or teacher's English too fast and hard to understand, he or she can start the instant translation to translate what they have heard into their native language on the smart glasses. It is especially convenient for international students who are studying abroad as they tackle the language barrier between teachers and students.

Other than the invention of the smart glasses, another Chinese invention that may appear soon is the flying bag. Flying bag is a bag that can make people fly. Yes, you read that right. When people get in the flying bag, they can fly. The bag resembles the equipment and parts of the aircraft, including the turbine engine. As most of the land in the future world may be covered by water, people in the future may have to go from one place to another other by travelling in the sky. When people carry this bag on their back, they can effortlessly fly in the sky. On the assumption that this magical tool is produced, humans can realize the dream of flying in the sky. It is exciting and people are already anticipating for its coming. If people got this terrific tool, they would be able to smoothly fly in the sky as freely as a bird. Who would not want to own such a dreamy backpack?

Besides smart glasses and flying bags, it is also possible to have floating cities in the future. Traditional cities often face limitations in terms of available land for expansion. The presence of floating cities can help solve the problem. The idea behind floating cities is to create self-sustaining communities that are designed to float on water bodies such as oceans, rivers, or lakes. On the one hand, floating cities are a potential solution to various challenges faced by coastal regions due to rising sea levels, overcrowding, and the threat of natural disasters. On the other hand, floating cities can utilize the vast expanse of water bodies, allowing for the creation of new living spaces without encroaching on valuable land areas. With the increasing threat of rising sea levels due to climate change, floating cities provide a solution that can adapt to changing water levels. They can rise and fall with the water, mitigating the risk of displacement and providing a stable living environment for residents.

We will not only find floating cities, but also moon hotels in the near future. The rapid advancements in space technology, robotics, and spacecraft capabilities have made the idea of a moon hotel more feasible. These advancements have reduced the cost of space travel and increased our understanding of the lunar environment, making it more attainable to envision human habitation on the moon. The moon hotel would be situated on the surface of the moon, offering breathtaking views of the lunar landscape. Guests would have the opportunity to observe the Earth from a unique vantage point and witness the beauty of the moon's craters, mountains, and vast open spaces.

By establishing a moon hotel, the focus of human activities and potential environmental impacts could be shifted away from Earth. This could contribute to the conservation and preservation of Earth's ecosystems, as well as provide insights into sustainable practices and technologies that could be applied on Earth.

The outbreak of the COVID-19 pandemic has forced humans to rethink how we teach and learn. The metaverse, a 3D digital space mixed with the real world and the virtual world, has been heralded as a trend of future education with great potential.

The application of metaverse education can be very wide, including language learning in the virtual world, historical investigations, and scientific experiments. For example, in language learning, students can learn language knowledge and skills through scenes and characters in the virtual world. When learning English, students can enter a virtual English environment, talk to virtual characters, read English articles, and listen to English music, so as to improve

students' language communication skills, listening, speaking, reading and writing skills, and understanding of language and culture.

Metaverse consists of many applications, especially in education. Metaverse has a virtual classroom that is 3D, in case people can see some dioramas and brain maps to make the presentation of knowledge clearer and more complete. For example, the metaverse enables people to observe and understand the structure of human cells in a comprehensive and detailed way, and can also observe mutated cells in the form of three-dimensional animations in biology, which helps people to understand the structure of cells and the process of mutation from more aspects, as well as studying more previously undiscovered biological knowledge.

In terms of history, the metaverse can also present historical stories in a holistic manner, so that the historical episodes of ancient times seem to be placed in front of them so that students can truly immerse themselves in history and better comprehend historical knowledge. In addition, there is a certain error between the geographical location in the historical map and the actual location in ancient times, so people cannot know the real location of the historical building and observe its details. Nonetheless, if there is a metaverse, people can be in the middle of a historical building, and observe the details that are missing from multiple angles.

In addition, it can also indirectly expand the curriculum, because modern technology is not developed enough, people learn knowledge to rely on the research of the ancients, but those research materials are not comprehensive, or there are some flaws and omissions, therefore, the metaverse support to help people develop unexplored fields, or supplement and improve the loopholes of research through the comprehensive display of knowledge.

It is believed that the metaverse can also make students more willing to learn and absorb knowledge because it has the function of allowing students to learn knowledge while exploring. As a result, students are engaged and learn in a playful manner. Dull lessons will become interesting, and students will not have to sit in their seats and wait for the school day to end.

Looking to the future, Chinese technological advancement is expected to continue at a rapid pace. The country's commitment to innovation, significant investments in research and development, and the continued growth of its tech companies indicate a promising future. Chinese advancements in AI, quantum technologies, space exploration, and other areas are likely to shape global technological trends and contribute to economic growth and societal transformation. Collaboration and partnerships with international counterparts will be crucial in facilitating the exchange of knowledge, fostering innovation, and addressing global challenges.

China's Inventions

SKH Tang Shiu Kin Secondary School, Chan, Kyle – 17

Mobile payment refers to a payment behavior in which users use mobile terminals (including smartphones, tablet PCs and other mobile tools), access communication networks or use short-distance communication technology to complete information interaction, so that funds are transferred from the payer to the transferee.

China has become the world's largest mobile payment market, with a leading position in terms of mobile payment user scale, transaction scale and penetration rate. In today's China, whether it is the urban agglomeration in the north or the remote countryside in the west, mobile payment such as cell phone "Sweep" has become one of the most commonly used means of payment in daily consumption such as catering, shopping, transportation and medical care.

With the increase in the penetration rate of smartphones, the decrease in the cost of mobile data access, the continuous improvement of government regulatory policies, and the increasing purchasing power of the people, mobile payment has developed rapidly, integrating and innovating with related technologies and business models, resulting in a wide range of mobile payment services, which have provided people with a convenient, safe, and rich way of consumption, accelerating the development of China's digital economy and the process of digitalized life.

1. The development of China's mobile payment market

Today, mobile payment has changed people's lifestyle in ways that were unimaginable a decade ago. Ten years ago, payment methods were mainly cash and card payments. 2000 to 2009, domestic operators, commercial banks and third-party payment institutions have made a lot of efforts to explore mobile payment, but because of the conditions in all aspects are not yet in place, the mobile payment business and the scope of application did not realize the quantitative leap, and it is difficult to significantly expand the market scale.

In June 2011, the central bank issued third-party payment licenses, and 27 companies, including UnionPay, Alipay and Caixit, were granted licenses and became the first licensed payment institutions in China. In the summer of the same year, with the emergence of taxi software, the small and high-frequency application scenarios matched with mobile payment products, and mobile payment gradually penetrated into people's daily life, and taxi payment became the first popularized area of mobile payment. During this period, smartphones began to be popularized in the market, the differences in mobile payment technology were basically eliminated, mobile payment application scenarios were promoted, and mobile payment entered the period of market development. Enterprises with mature payment technology and a large number of users showed positive development, and through continuous innovation and application, they not only adapted to the market needs, but also created market demand, which contributed to the growth of the mobile payment market.

In 2013, Alipay launched the "Balance Treasure" program, opening the way from mobile payment to universal financial management. The launch of "Balance Treasure" has increased the user stickiness of Alipay and opened a window for ordinary people to manage their finances, allowing many people who did not think they needed financial services to take the initiative to manage their finances and realize the preservation and appreciation of their wealth.

In 2014, WeChat launched the WeChat red packet function, which pushed WeChat payment into a rapid development channel. In December 2015, China UnionPay launched the "cloud flash payment" product, in February 2016, Apple Pay officially entered the Chinese market, and Samsung Pay was launched by Samsung in March of the same year, while Xiaomi Mi Pay and Huawei Huawei Pay were officially launched in August. Samsung Pay was launched by Samsung in March of the same year, and Xiaomi's Mi Pay and Huawei's Huawei Pay were formally launched in August, with commercial banks and cell phone providers joining the mobile payment camp on the basis of their user bases.

There are currently a large number of third-party mobile payment companies in China, but those that are closely integrated with the digital scene are doing better. Relying on Alipay and Mobile Taobao, Alibaba has opened the way to mobile payment based on mobile e-commerce, while Tencent has rapidly entered the mobile payment market with WeChat Pay through its WeChat instant messaging application. According to the research report, Alipay and WeChat occupy the absolute share of China's third-party mobile payment market, reaching 92.53%.

2. Mobile Payments Born Out of Momentum

Mobile payment technology, as the most important innovation element on the supply side, has aroused the public's need for new payment methods. The demand for convenient and secure payment in the huge Chinese payment market has accelerated the integration of mobile payment technology with the market.

The mature application of remote payment and near-field payment technology is the main technical driving factor for the rapid development of mobile payment, which not only guarantees the security of mobile payment transactions, but also promotes the simplification of mobile payment procedures. Remote payment is mainly network payment, which is mainly based on the Internet and realized through online banks or third-party payment platforms. 5G mobile communication technology, which is still in the preliminary application stage, will provide more possibilities for remote payment innovation. Near-field communication interaction technology plays a key role in the development of near-field payment. At present, the technical realization of near-field payment mainly includes barcode payment technology, NFC, face swipe payment, sound wave payment and other major solutions. From the perspective of the development results in recent years in China, barcode payment has become the mainstream.

The development of mobile payment has fundamentally changed the traditional payment mode. Driven by the development of the Internet, mobile payment has provided new impetus for economic development and improvement of people's livelihood.

Promote the transformation and upgrading of traditional industries. Mobile payment not only changes the payment method, compared with traditional payment methods, but also shortens the time loss of the payment process, reduces the cost of "trust" between people, improves the efficiency of payment services, and innovates a variety of payment business models, which brings not only the flow of funds to the main participants in the market, but also the flow of talents and logistics attracted behind the funds. It brings not only capital flow to market participants, but also talent flow, information flow and logistics flow attracted by capital. Mobile payment covers all industries in society, deepens the intersection of various advanced technologies, promotes the transformation and upgrading of traditional industries, and is a gas pedal for China to build a moderately prosperous society in all aspects.

Efficient and convenient mobile payment gives people a greater sense of "access". The development of mobile payment with Chinese characteristics is in line with the people's livelihood and the wave of social development, and to a great extent breaks through the limitations of time and space on the payment industry, and its portable and simple payment characteristics meet the people's demand for cash-light and efficient life, and enhance the people's sense of well-being. While changing people's payment life, mobile payment has also entered the field of public services, helping to improve the efficiency and quality of government public services, so that the public can do less errands, less queuing, or even do not have to run once.

3. China's Mobile Payment Ecosystem

From the QR code payment in supermarkets and convenience stores to the instant recharge of phone bills, from the cell phone purchase of train tickets to the password-free payment of online car travel, etc., mobile payment is subconsciously integrating into the lives of the public, making daily consumption more convenient, fast and hassle-free. Mobile payment has spread its tentacles to various industries and involves several parts of the economy and

society.

3.1 Government and People's Livelihoods

Mobile payment has an inherent advantage in enhancing the government's digital governance capability, effectively improving the intelligence of government services, forming a benign interaction among the government, enterprises and the public, and using mobile payment as an entry point to achieve a one-network, complete identification, business processing, and fund flow, forming a closed loop of the entire business. For the public, the value of the program is that it reduces the burden of action, and by using technologies such as online application, face recognition, and mobile money transfer, they can complete procedures that would otherwise require them to run through multiple government windows without leaving their homes. For the government, the value is: moving all government affairs to the cloud, making them more transparent, more open and more honest; cracking data silos, integrating data from departments such as industry and commerce, taxation, labor insurance, environment, safety supervision and fire prevention, etc., and realizing data integration within the governmental affairs system.

3.2 Medical services

The combination of mobile payment and medical service will, to some extent, indirectly affect the reform of the medical industry. China's high-quality medical resources are generally scarce, the traditional medical process is cumbersome, difficult to register to see the doctor and other problems have been accumulated for a long time, medical services access to mobile payment application services, can greatly save the doctor and patient consultation time, enhance the efficiency and level of medical services. At present, there are two application scenarios of mobile payment in hospitals, namely: the user prints the medical guide sheet at the hospital self-service terminal, and completes the payment by actively scanning the QR code; the user pays the fee at the hospital fee window, and the fee collector completes the payment through the scanning equipment by scanning the QR code. In the future, through mobile payment to create a smart version of medical health services, you can move the registration, diagnosis and treatment and payment processes to the line. Early booking, online calling, first see the doctor and pay later and other modes, will effectively solve the previous difficult to register, queuing for a long time, slow payment and other problems, to enhance the comfort of medical treatment, to ease the relationship between doctors and patients.

3.3 Transportation

At present, mobile payment facilitates transportation, mainly in three aspects: First, the bus and subway to realize the scan code ride. In many cities, code-sweeping has gradually become another major way for citizens to pay fares. In addition to bringing passengers a convenient and efficient travel payment experience, this application can also help the Internet transformation of public transportation agencies and promote the upgrading of the business model of the public transportation industry. Second, highway toll payment. By binding the third-party mobile payment account with the license plate number, the system automatically recognizes the license plate when the vehicle owner crosses the highway intersection and automatically deducts the payment directly from the third-party payment platform without arranging manpower to collect the payment. This method can not only improve the traffic efficiency of the highway, but also enhance the smart attributes of the city. Third, parking lot charging. Through automatic license plate recognition and sensorless payment technology, parking lots have opened up businesses such as "Stop Simple", without the need for manual time charging or the installation of charging equipment at the entrances and exits of parking lots. In addition, the mobile payment portal can also provide the service of reserving parking spaces, and even open up the data interoperability between shopping mall consumption and parking fee waiver, so as to realize the effect of promoting consumption through parking.

4. Risks to the development of the mobile payment industry

4.1 Technology Risks

The technical risks of mobile payment mainly include technical security risk and technical system risk. Technical security risks are mainly reflected in the cracking of payment passwords and leakage of user information; technical system risks include system vulnerabilities in the payment process and improper system protection of payment funds. As the main carrier of mobile payment, cell phone is prone to theft and loss, and there are certain risks of payment information leakage and loss of payment account.

4.2 Control system risk

The risk of the control system of mobile payment mainly includes the internal control system and risk warning mechanism. As an important part of the financial industry, the internal personnel of an organization needs to have high moral quality, the ability to control and manage large amounts of funds, and the ability to master financial laws and regulations. Secondly, the industry has not fully established a mature and unified risk warning mechanism, and the ability to grasp unknown risks is still lacking.

4.3 Industry Regulatory Risks

In the past ten years, China's mobile payment has gone through a phase from initial emergence to rapid development. However, due to the late development of China's mobile payment and its rapid development, the relevant laws and regulations in terms of state supervision are still not perfect. Regulators have issued some supporting laws and regulations, but compared with the rapid development of the industry, there is still a certain lag in leading the industry rules.

The State of Invention in China

SKH Tang Shiu Kin Secondary School, Cheung, Ka Chun – 16

Since the dawn of time, innovation and discovery has been a staple of human evolution, from something as trivial as the new iPhone to the revelation of fire, all bringing us one step closer to the increasingly prosperous and sustaining society that we so desire. The Chinese people, being one of the oldest remaining civilisations with over 5000 years of history, is a major contributor to the lifestyle we have today, developing and bringing many modern possessions to life that were fantasies in the past.

Tsai Lun of the Han dynasty used rags and other textile wastes to form a smooth fabric semi-permeable to ink which eventually develops into paper, allowing a more efficient way to document and store information, transforming knowledge from being the sacred treasure of the rich to common wealth for the people, single handedly open the doorway to a more inclusive and larger scale of education, and to this day, is still crucial in reading, writing and other cultural activities. Wei Boyang of the Eastern Han dynasty, famed as the father of alchemy, in search of an elixir to extend life, discovered gunpowder which led to the death of billions and millions more to come. But behind the warfare and bloodshed brought by its destructive capabilities, it could also be considered a blessing as with it land can be terraformed and reshaped for a much cheaper cost, allowing infrastructure such as railways to be built with ease and creations like fireworks to sprout into existence.

These are all familiar stories we've encountered in our childhood, though all existing in the form of chronicles, the wisdom and creativity of our ancestors are apparent, helped shape the world into what it is today. The contributions our civilisation have made are undeniably grandiose and are recognised through these achievements. However as time passes, many have started doubting whether those spirits have been inherited, and if we currently bear the same insight in our blood. These allegations are of course inaccurate, but it does beg a question, what has China accomplished in recent years?

When discussing inventions that are most impactful, many may turn to technological aspects. We are living in an age of science where the internet is most prevalent after all. While many may think that China is inferior to other superpowers such as the US and Japan in terms of technology, that is a false perception that is far from the truth. In recent years China has made many advancements in fields such as automations, engineering and architecture. A research team lead by Pan Jianwei, a leading scientist in China's national quantum research programme, developed a quantum computer by entangling many ultra cold atoms that can solve extremely complicated math problems in just a millionth of a second, achieving a millionth-fold increase when compared to its predecessors, being the fastest computer on earth. Something on a much grander scale would be the BeiDou Navigation Satellite System developed by the Chinese government with aims of improving the national security and aiding social economic developments with it providing all time, all weather and high accuracy positioning, timing and navigation services. Though impressive, they are difficult to relate as they hardly involve with our daily lives, one that is and does bring convenience in our everyday ventures is the switch from cash to recently developed electronic payment systems through third party apps like WeChat Pay and Alipay. This removes the hassle of going to a bank and allows payment and money related problems to be taken to technology and social networks. Though there may be concerns with hacking and fostering a more parasocial lifestyle, it's a sign of a modern change in preparation for an era where our lives will be more closely intertwined with our online personas.

Other than that, China has also made many medical breakthroughs in the past tens of years like the development of artemisinin from *Artemisia Annua*, a cure to malaria, lead by professor Youyou Tu who obtained the Nobel Prize in Physiology and Medicine in 2015 for her discovery. Another important breakthrough is the invention of the prion protein monoclonal antibody therapy for the Creutzfeldt-Jakob disease which is the first in-human treatment programme of its kind, paving the way for prospects of similar solutions for other conditions. These achievements are impressive, but China have only gone and improved its efficiency and effectiveness as shown by the China National

Pharmaceutical Group inventing the Sinopharm vaccine in under a year after the initial outbreak of Covid-19 which was a speed thought to have been impossible just a few years prior.

China has also done a lot in the entertainment industry, producing enjoyment through different mediums and causing waves in the video game industry, namely Pubg mobile from Tencent Games, which for a while was one of the most popular games and often attributed as the cause for the rise of battle royals games, giving gamers a more competitive, exciting and engaging gaming experience. And on the other hand Genshin Impact, a game developed by Mihoyo with a much more relaxing and laid back gameplay, which grabbed players heart with their interactive story quests and interesting characters with fun personalities. It being an open world multiplayer online role playing game, is hailed as the one that brought the rise of gacha games, a new type of video game which encourages its player to spend money on it to pull for characters with attractive or cool designs. It is a massively popular game as shown by comparing the revenue of Genshin Impact to that of playstation, with Genshin winning by 400 million. Video games aren't they only area China has branched out to as Chinese comic or their official name "manhua" has been receiving more and more attention from foreign countries and some have even been animated in the form of "Donghua" like "link click" in face of demand, opening the industry to a much larger audience. And of course how could we forget TikTok, the problem child of the internet riddled with controversy, yet despite its bad reputation, it still maintains a staggering 1.1 billion monthly active users, being a platform for people to post, share and enjoy short form content, giving people an opportunity to express themselves or even become an overnight celebrity, and to communicate with other influencers.

These projects are of course all funded by the government or large companies but individually, innovation is also blooming. The amount of patents registered by Chinese personals increases every year substantially, reaching 49 % of the worlds total amount of patents. This shows that as a country, people are more motivated than ever to design and to innovate, the spirit of creating something new beneficial to society still exists no matter where it originated from, being inspired by online mediums, having aspirations of reaching the level of precursors or even to become a pioneer of a new age. It is not loss, rather something that is able to nurture and grow as we receive more resources and guidance.

Then, why does it seem as if we've hit a wall, that we have hardly any momentous leaps in our modern developments? Everyone has creativity, but nobody has perfect information, in this day and age where scientific improvements are revered, it begins to stem further and further away from our daily lives, to the point where some mind boggling discoveries made by combining the minds of several masterminds will never be encountered or understood by the average person. Basically, so much has been done that it feels like anything new is ordinary. So the concept of innovation has changed along with it, reshaping from inventing, to refining. To apply new concepts to already made products and enhancing their use and quality. It is not that innovation has began to diminish but that we are so accustomed to choice and comparison that we fail to recognise the small modifications made to further our experience. Like paintings from proficient artists, it's only when we push past the usual, that we could see the sparks of genius involved.

The landscape of inventing, with the implementation of several laws and copyrights, coupled with huge business opportunities, it has become competitive and relentless, it is times like this that we forget our original drive for invention, pushed by our own desire to produce something that encapsulates our imagination. Inventions are visions we have for the world, we leave them behind as meaning for our existence ,not just as a way of income or for others indulgence. So when we delve into tales of China's invention don't just ponder about their practicality , admire their dreams and motives, as we await for more to come.

The Great Inventions

SKH Tang Shiu Kin Secondary School, Ng, Chi Ying – 15

From the Heavens, I watched in awe and wonder as the centuries unfolded beneath me. I, Cai Lun, the ancient Chinese inventor of paper, had always thought that the innovativeness of my people would never cease. As I gazed down upon the world, the beauty of the Chinese spirit unfolded before my eyes.

It all began with the humble invention of paper, my own creation. I remembered the moment vividly, the feeling as I ran my fingers through the delicate fibers, the notion that this simple material would change the course of history. From the embers of my kiln, I had forged an innovation that would endure for millennia and shape the progress of the world.

As I watched the ebb and flow of history, I marveled at the ingenuity of my fellow countrymen. During the Tang dynasty, the artistry of woodblock printing unfurled across the countless scrolls, manifesting knowledge in a way that was previously unimaginable. It soon found its way across Asia and beyond, igniting the flame of wisdom in every corner of the globe.

Then, the intoxicating scent of gunpowder filled the air. Invented not long after my own contributions, it was a revelation that resonated far beyond the Middle Kingdom. The explosive mixture, transformed into a weapon of war, propelled empires and shaped the destiny of nations. As the Europeans laid claim to its power, they built empires and reshaped history, all with the aid of a substance born from the depths of Chinese innovation.

Amidst this cascade of change, I witnessed the elegant mastery of Bi Sheng's movable type during the Song dynasty. The method by which knowledge could be disseminated had irrevocably changed, as the written word began to echo across the nascent empires and burgeoning cities. The impact of such a creation upon the minds and societies of the world was immeasurable, for it rattled the chains that bound thought and spurred the undying hunger for knowledge within the hearts of men.

As I observed these inventions, which sprouted from the fertile soil of Chinese innovation, my heart swelled with pride. The whispers of history sang through the annals of time, highlighting the prowess and resilience of my people. We had carried the torch of knowledge throughout the ages, etching our legacy into the fabric of human advancement.

But as the centuries surged forward, the panorama before me crescendoed into a disheartening vision. Amongst the accomplishments of the past, the present waned, obscured by the pervasive allure of digital fantasies and virtual realities. The children of my children's children had become ensnared in a realm of pixels and screens, relinquishing the pursuit of new discoveries for the sake of transient entertainment.

In the wake of this revelation, a sorrowful lament escaped my lips. How had the exuberant spirit of innovation been dimmed? The monuments to ingenuity that had once risen from my homeland, the monuments that had testified to the ceaseless pursuit of knowledge, now stood neglected and maligned, shrouded in the apathetic fog of fleeting distraction.

I mourned the disparaging disregard for the treasures of our past, for the lineage of genius and triumph upon which these young souls tread. The Chinese spirit, steeped in the ink of ceaseless innovation, was dishonored by the neglect of its heirs. The echoes of our continuous contribution to the march of progress were but faint whispers in the ears of the heedless.

Yet still, amidst the sorrow and longing, my heart beat with a resolute pride. For even as I witnessed the descent of the present, I remained enfolded in the splendor of the past. From the cradle of Chinese civilization to the zenith of global influence, we had sculpted the course of history with the strokes of our unyielding creativity. The inventions that

burgeoned from our land, from the velvety touch of paper to the explosive embrace of gunpowder, had threaded the tapestry of human civilization.

It was in this dichotomy that my spirit found solace and purpose. I recalled the immortal words of Laozi, who had once said, "A journey of a thousand miles begins with a single step." The path ahead may have been shrouded in uncertainty, but as I peered into the heart of China, I caught a glimpse of the unwavering ardor that beat within its soul—a fervor that would endure, inspiring the generations yet to come.

The endeavors of our ancient ancestors and forebears had kindled the flames of innovation and curiosity. And while the present waned, the legacy of the past emboldened me to believe that the Chinese spirit, an unquenchable fire that had sparked the imaginations of nations, continued to endure.

In the end, as I gazed upon the panorama of history, I found myself both grieving and exulting. The lamentations of the present were juxtaposed against the soaring crescendo of a rich and storied past. The Chinese people, perennially creative and insatiable in their pursuit of knowledge, had indelibly etched their mark upon the annals of time. And as I watched from the Heavens, I knew that the spirit of innovation, impulsive and enduring, would forever course through the veins of my countrymen, whispering tales of boundless discovery and the ineffable beauty of creation.

The Greatest Country of Inventions

SKH Tang Shiu Kin Secondary School, Ng, Dick Hei – 15

In the rich tapestry of Chinese history, many different items or tools were invented in different dynasties to assist people in making their everyday lives more convenient. Can you name one or two of them? For example, paper was made in Han Dynasty to make writing more easily recorded.

Nowadays when we turn on our mobile phones and press the app of Google Map, have you ever noticed there's a vane-like icon on the top right corner of the map? It is none other than compass, one of the greatest inventions of ancient China. The invention of compass was firstly recorded as a lodestone compass, made by iron, in Han Dynasty. It worked using the principle of magnetic field from the South Pole, and as a consequence, it differed from the modern one, which has a red vane pointing to the north. Yet, due to the weak magnetic force, it was then altered to a water-floating compass, and finally to a modified one in Song Dynasty. Since that dynasty, compass has been widely used in different sectors, mainly in the navigation of ships, thus boosting the marine trade between China and western countries. Through trade, the technology of making compass was passed to Arabic countries or even western countries for military purposes, laying a foundation of making navigation system. In the twentieth centuries, many of them have been changed to mercury or digital ones, becoming more and more precise and accurate in showing the direction with degrees.

Have you ever seen a paper-like version of a compass in a story book when you were still children? It is a map, showing the whole world in a two-dimensional way, and it is made of paper. A long time ago, ancient people usually wrote on the shells of tortoises, bamboo and even rocks, yet the markings on it cannot be erased and even fade away when coming into contact with water, causing troubles for people to write. Until Han Dynasty, a man called Cai Lun invented paper-making by boiling the cut trunks in a pot of water. When writing with an ink brush, the ink could reveal itself on the paper completely and readers could clearly see the words on the paper. Also, by writing with paper, the cost of production would be lower and transportation of law books to the emperor would be more convenient because of its lightness and thinness. Owing to these reasons, the technique was soon approved by the emperor and spread throughout the whole empire, and as far as to Arabic countries and western countries, leading to the printing and production of books.

Have you ever discovered the formulaic font in a book when flipping through it? It is certainly impossible for human beings to write down each alphabet letter in the same size and shape. Then, how come the writings look identical in books, newspapers or other publications? Right, it's printing, the technology of copying a word, sentence, paragraph or even an article of the same font and leaving the writings on a paper. Long long time ago, there was already printing technology in ancient China, where the civilians carved their writing on a piece of wood or stone, dipped into ink and pasted it on a paper. This sounded great but it actually caused a lot of waste and time loss. For instance, when a worker mistakenly carved a wrong word, the whole paragraph was going to be carved again and again until there were no flaws, resulting in high-priced books. In Song Dynasty, Bi Sheng who was an engineer, invented the first movable type which was like a pile of seals having one word on each and they could all be put in different sequences. Thanks to this great scientist, the invention of movable type has greatly enhanced the efficiency of printing and lowered the production cost of books. After a few decades, following the development of the Maritime Silk Road, the technology of the movable type spread to a lot of countries, leading to the foundation of the invention of the modern printer.

'Ten, nine, eight...three, two, one! Happy New Year, 2024!' It is certainly how everyone celebrated the countdown on the last day of each year. Following the closing of the countdown ceremony, it is the fireworks show. Have you ever thought about what makes up such beautiful fireworks? It is composed of a kind of explosive chemicals -- gunpowder. In Tang Dynasty, gunpowder was listed in a book by Chinese alchemist. It was a sort of chemical created with the mixture of sulphur and other flammable or oxidising substances in order to create an explosion which can be small to burn one's hands and be big to ruin one's house. Till Song Dynasty, the third time to appear in this text, a man who was fond of astronomy tried to tie himself to a chair with some fireworks-like items. At first, everything was

on the right track but it soon exploded and sent him up into the air. Sadly, the man died, but his unprecedented act and courage inspired many people to invent different kinds of weapons, such as guns, cannons, and bombs. Due to these inventions, the Song military won a lot of battles against the enemies. As mentioned before, when the Maritime Silk Road was opened, innumerable westerners came to China for deals and trade. Over time, those fire weapons were shipped to European countries and were improved in both accuracy and strength. Miserably, the western empires were too ambitious to use them to devastate African or other less developed countries and turn them into their colonies for exploitation of natural resources and labour so as to enhance their empires' prestige and status. Nevertheless, on the positive side, gunpowder can help open up a hole for mining, which greatly reduces the manpower and time for digging as well as increases the efficiency and productivity. To cut a long story short, whether gunpowder is good for us, it depends on how people make use of it.

It is time to introduce some other inventions that also originated in China.

While you are flying on a carpet travelling over the city, there is always a loud sound dragging you out of your fabulous dream to reality. It is the clock which comprises various components. In Tang Dynasty, there was a man called Yi Xing who thought of using water to boost the rotation of gears of a clock, named as water clock consequently. The idea was further modified and became the first clock in Europe.

Following water, rain is always accompanied with it. Have you ever thought of how the ancient civilians avoided getting wet? Long time ago in China, people had already known oil and water could not be mixed together. Thus, making use of this property, they created the oil umbrella which could help themselves to prevent from getting wet. They soon invented foldable umbrella which can be flipped to save space and be portable when going out. The design has become the foundation of both modern umbrella and the automatic one.

Without a doubt, China is a country full of imagination, creativity and talent, laying the foundation for a number of modern inventions and technologies. As you can see, after entering the era of twenty-first century, China is gradually gaining power and rise in status and influence, becoming a world dominating figure to its surrounding or even farther countries. As the saying goes, 'no pain, no gain'. Since there have been such a large number of talented inventors or scientists in China who have invested their lifetime to delve into the world no one has ever seen, China became more and more well-known as an epitome to people from all over the world.

Impressive and inspiring stories of 'The Chinese Heroes'

SKH Tang Shiu Kin Secondary School, Szeto, Pik Ha – 16

Have you ever gained deep insights into the breakthroughs and the achievements made by our Chinese inventors in days of yore? It is natural to neglect and ignore the original process of how the products we use nowadays are invented, as the living standard of people has been raised significantly and our lives have become much more convenient, thanks to the advanced technology nowadays. Hence, I believe that the contributions made by our “Chinese heroes” aren’t widely recognised by the general public. In fact, there is a rich history of Chinese innovation. You might not notice that civilization flourished continuously in China from about 2000 BCE, when the first of the historical dynasties emerged. It is known that with more than four thousand years of recorded history, China is the oldest continuous civilization of the world. It is extremely amazing, isn’t it? Chinese civilization is often described as an unbroken thread stretching back thousands of years, making it one of the cradles of civilization. Until now, after the continuous development and improvement of the inventions by the Chinese inventors, they can certainly influence the world, altering our life styles.

The significance and impact of the remarkable discovered by the Chinese inventors are impensable and unimaginable. The most well-known inventions are paper making, printing, gunpowder and the compass, which is the four great inventions of ancient China. They are the significant contributions of the Chinese nation to world civilization. For example, the recipe of making gunpowder which is the mixture of potassium nitrate, charcoal and sulphur was discovered by the Chinese alchemists in the 9th century CE. This marked the important milestone of the technological development of the whole world. Moreover, it has shaped the styles of warfare at the time while resulting in massive political and cultural change in Europe and beyond such as the eventual collapse of feudalism and the Siege of Constantinople. Besides, porcelain which is renowned and famous for its beauty and durability represents a uniquely traditional Chinese style of innovation. China dominated for the production of the porcelains, and they were traded across Asia to different countries during the Silk Road, spreading the Chinese culture towards the world and had established a worldwide reputation. Furthermore, it inspired the development of tin-glazed earthenware in present-day Iraq in the 9th century. All these had shown the talents of the Chinese inventors to invent such an influencing and essential innovation, indicating the impressive achievements of the inventions in China.

So you may be curious about who is the prominent Chinese inventors and have made such a significant contribution in various field? Firstly, created his most intriguing design almost 2000 years ago, Zhang Heng is regarded as Leonardo Da Vinci of ancient China and marks the beginning of the science in the field of geophysics and seismology. The seismoscope consisted of a bronze vessel with eight dragon heads, each holding a ball in its mouth. If earthquake occurs, the balls in the dragon heads will fall. By observing which ball in the dragon was dropped, Zhang Heng knew the direction of the seismic waves. Although the difficulties and obstacles he faced at that time might not be well-documented, I believe that there must be an accumulated and uncountable failures before success. In the past, he had used the available materials and resources to designate the seismoscope, which had been scarce and limited compared to the modern benchmarks, posing challenges for the invention. In addition, the lack of technological advancements on that occasion made the process of doing experiments and inventing be much more strenuous. He needed to use his own creativity, imagination and ingenuity to overcome the obstacles. Despite the hurdles he encountered, Zhang Heng demonstrated his perseverance and innovative spirit, showing science needs the ongoing inquiries and a critical thinking mindset. His invention has continuously inspired the scientific and technological advancements nowadays, as well as making contributions to the world by having earlier notifications of earthquakes, preventing the negative impacts and the potential risks on human, society and the environment.

Did you know that books in the past were handwritten on wooden boards or bamboos? Therefore, it is hard to imagine that how much time needed to be devoted to the production of books. The time consuming and limited in terms of flexibility production method led to the inefficiency of the work. Yet, created in the 9th century and known as a vital heritage, the Movable Type, which changed the way printing was done originally, was invented by Bi Sheng.

He thought it was of the paramount importance to alter the way of printing and made the price of getting the books more affordable. This contributed to the development of the printing technology and reduced the mistakes made while printing and duplicating the words, facilitating the efficiency of mass production. In the Movable Type, there were several duplicate types for each character, and twenty or more types for certain common characters, in the hope of preparing the repetition of the character on the same page. In spite of his groundbreaking contributions to the advancements in technology, he invented the Movable type to help preserve the knowledge, making it more accessible to a wider audience and for the future generations. Moreover, this benefits the poor to have a greater opportunity to learn and study, achieving opportunity equity. It nurtured the development of literature, creative ideas and science, leading to the sharing of knowledge and information. Consequently, it not only revolutionized the method of printing, but also played a crucial role to spreading education and literacy to the world, as well as human knowledge and culture.

Do you think that the invention and development of the compass are very mighty and noble? Actually, tracing back to ancient China during Han Dynasty, Chinese inventors discovered the natural magnetic properties of some minerals and magnetite. By the 11th century, a significant achievement was made by replacing the device with a magnetized needle which was marked with directional indicator, shifting it to magnetic needle compass. These Chinese inventors exhibited a strong sense of curiosity about the world around them, contributing to have more chances to discover a principle and set up a hypothesis by observing and exploring the things around the world. It is believed that their commitment to observing and questioning the world allowed them to make noteworthy advancements in their respective fields.

Furthermore, why the Chinese inventors are just like heroes? It is because they have a desire to solve problems and improve existing systems, aiming for improving the living standard of the citizens in the world and making a lasting impact on the human civilization. An ancient Chinese inventor said that, “When the winds of change blow, some people build walls and others build windmills.” It shows that the Chinese inventors always embrace changes, are dedicated and determined to improve, as well as building a better world. They must need to face the challenges like the opposition and the existence of distrust of many people who build walls to refuse their ideas. It is brave of them to insist in their own thoughts and endeavoured to build windmills to facilitate the rate of the wind speed. Instead of resisting or fearing changes, they still harness their energy and convert them into something productive and useful which might be a catalyst for growth and innovation. This shows that the Chinese inventors are open to new possibilities, willing to take risks, and use change as the chance to pursuit knowledge and innovations. As they persevered through adversity and limited resources to create a groundbreaking inventions, there is no doubt that their resilience in the face of hurdles make them an inspirational figures, icons and role models for everyone, as well as a source of pride for the Chinese people. They deserved to be respected and admired.

In addition, Chinese inventors not only excelled in science and technology, but also made a far-reaching impact in art and culture. Inventions such as traditional painting skills and paper cutting contributed to the rich artistic heritage of China and influenced artistic traditions around the world. They made the spirit of innovation, creativity and perfectionism deeply rooted in our Chinese culture and their accomplishments led to the national identity of China. Moreover, the Chinese inventors in the past have tremendously inspired generations of inventors in the world. Laying a foundation for further developments for the study, their inventions have paved the way for the stronger connection between the East and West countries through cultural exchange as many of them were traded and introduced to the West to revolutionize the communication. Therefore, they are truly the heroes who are inspiring and altruistic.

Chinese inventors can be called the influential heroes and the legends. Not only did the Chinese inventions facilitate the spreading of Chinese culture, but also shaped and stimulated the economy and trade internationally and drastically. For instance, the silk production had a profound effect on the global economy. Chinese silk was the popular good to be exchanged during that time like the journey of Zheng He traveling to the West. They were sought after by numerous westerners, driving the economic activity and shaping the global trade routes, as well as boosting the growth of economies of the East and West at that time. Hence, the Chinese inventors had played an important role in the influence in global economy and it couldn't be underestimated.

A famous Chinese proverb “Don’t be afraid of growing slowly; be afraid only of standing still” represents the spirit and motto of the Chinese inventors. They always strive for continuous personal and professional growth, with the aim of inspiring more and more individuals to take an active role in creating a better future for human civilization. Obviously, they aren’t conservative, but are willing to seek improvement. It is known that they are patient and believe that progress of invention must not be rapid, and their perseverance might be useless or couldn’t be seen by others. However, after a long time, the efforts and achievement must eventually be recognised and make a profound and eternal significance. As a result, this demonstrates the wisdom and intelligence of Chinese inventors, who focused on the present moment and made efforts to progress towards their aspirations.

Overall, undeniably, Chinese inventors are deserved to be regarded as heroes because of their contributions to the technological advancements, determination to build up a better world, their embodiment of cultural pride, ability to overcome difficulties and impact on the global and future generations. Thanks to them, we can live in a better world and pass the spirit down, continuous to strive for the development of human civilization as I believe that improvement of human has no absolute limits. It is believed that the Chinese inventions will definitely have a lasting legacy that continues to inspire, impress and impact the world.

Inventions that may appear in the future

SKH Tang Shiu Kin Secondary School, To, Pak Leong – 16

Introduction

As a secondary school student studying Science, I always feel excited and enjoyable to imagine the possibilities of future inventions in my day dream. Rapid advancements in science and technology have shaped our world, and it is likely that many more groundbreaking innovations await us. In the following time, let's speculate on potential new inventions that can emerge in the near future, exploring various realms of innovation, such as Artificial Intelligence and Robotics, Renewable Energy, Transportation and Urban Development, Healthcare and Biotechnology, and Communication and Connectivity.

Artificial Intelligence ("AI") and Robotics advancements

With further advancements in AI and sensor technology, fully autonomous vehicles will very soon become a common sight on our roads. These vehicles will enhance road safety, reduce traffic congestion, and provide increased accessibility for individuals with mobility challenges.

Nowadays, AI assistants like Siri and Alexa have become household names, but future iterations can offer even more personalized, intuitive and emotional experiences. It should not be a long time when these personalized AI assistants can anticipate our needs, proactively provide suggestions, engage in natural conversations, and understand and respond to our emotions, revolutionizing the way we interact with machines.

It is foreseeable that AI has the potential to significantly improve healthcare diagnostics. Advanced algorithms can analyze medical data, including symptoms, medical history, and genetic information, to provide accurate and timely diagnoses. As a result, this can enhance early detection of diseases, personalized treatment plans, and overall patient care.

Quantum computers have the potential to solve complex problems at an unprecedented speed. These futuristic machines, leveraging the principles of quantum mechanics, can revolutionize fields such as cryptography, drug discovery, weather forecasting, and optimization algorithms, unlocking new frontiers in scientific research and technological advancement.

Drawing inspiration from the nature, swarm robotics will become a reality in the future. By emulating the behavior of swarms, such as ants or bees, groups of small robots can collaborate autonomously to perform complex tasks. This will lead to applications in search and rescue missions, environmental monitoring, or even building construction.

Renewable Energy Innovations

Solar energy is already a viable renewable energy source, but future inventions will harness sunlight more efficiently and affordably. Breakthroughs in solar panel technology will include flexible and transparent panels, improved energy storage solutions, and integration with other systems, such as buildings and vehicles.

There will be more innovative ways of harvesting energy from the environment. For instance, we can make use of piezoelectric materials to convert vibrations from human movement or ambient noise into electrical energy, powering small devices or even entire buildings. Similarly, we can apply solar paint or coatings to various surfaces, turning them into energy-harvesting structures.

Transportation and Urban Development:

In the future, hyperloop, a high-speed transportation system using low-pressure tubes, will become a reality, allowing for ultra-fast travel between major cities with minimal energy consumption and carbon emissions. This innovation will revolutionize long-distance transportation and reduce travel times significantly.

While still in the early stages of development, the idea of flying cars has captured the imagination of many, including me. But with advancements in electric propulsion, battery technology, and autonomous systems, it is believed that flying cars can become a feasible mode of transportation, offering a new dimension to urban mobility.

With the global population on the rise, vertical farming, utilizing advanced hydroponics and vertical stacking techniques, can provide a solution to limited arable land in urban areas while reducing water consumption and transportation costs for fresh produce.

Healthcare and Biotechnology Breakthroughs:

In the near future, regenerative medicine will revolutionize healthcare by enabling the regeneration of damaged tissues and organs. Stem cell research, tissue engineering, and gene editing techniques can allow for the growth of replacement organs, providing new treatment options for conditions such as organ failure and degenerative diseases.

With the advent of genomics and precision medicine, personalized medicine will be invented to provide tailored treatments based on an individual's genetic profile. Genetic testing will become more accessible and affordable, leading to personalized prevention strategies, targeted therapies, and improved patient outcomes.

The field of nanotechnology holds immense promise in healthcare. Nanobots, microscopic robots, can be designed to travel through the bloodstream, targeting specific cells or delivering drugs precisely. This will revolutionize drug delivery, early disease detection, and minimally invasive surgical procedures.

As our understanding of the human brain expands, advanced brain-computer interfaces can enable direct communication between the brain and external devices, allowing individuals with disabilities to regain mobility, enhancing neuro-rehabilitation, and potentially augmenting human cognitive capabilities.

Communication and Connectivity:

The Internet of Things ("IoT"), a network of interconnected devices, is already changing the way we live and work. In the future, IoT technologies can become more integrated and seamless, enabling greater automation, efficiency, and convenience in various domains such as smart homes, transportation systems, and healthcare. Even more, the integration of IoT technologies into urban environments can lead to the development of smart cities. Intelligent infrastructure, interconnected systems, and real-time data analytics can optimize resource allocation, improve energy efficiency, enhance public safety, and foster a higher quality of life for residents.

Virtual and augmented reality technologies have already made significant strides, but future inventions can take them to new heights. Enhanced immersive experiences, improved haptic feedback, and seamless integration into everyday life will transform entertainment, education, training, and communication.

Conclusion

The future of technology is brimming with possibilities. While we can only speculate on the new inventions that might appear in the near future, it is clear that groundbreaking advancements are on the horizon. From advancements in artificial intelligence and robotics, renewable energy, revolutionary transportation systems and urban development, healthcare and biotechnology breakthroughs to communication and connectivity, our world is poised for transformative change.

However, as we embrace these new inventions, it is crucial to approach them with a responsible and ethical mindset. Privacy and data security, ethical considerations in AI, job displacement, equity and access, and environmental impact must be carefully addressed to ensure that these innovations benefit humanity as a whole.

Ultimately, the future will be shaped not only by technological advancements but also by our collective choices. By fostering collaboration, embracing inclusivity, and prioritizing the well-being of individuals and the planet, we can navigate the challenges and ethical considerations that arise and create a future that is both technologically advanced and socially responsible.

As we eagerly anticipate the emergence of new inventions, let us remember that the power lies in our hands to shape the future we want to see. By leveraging technology for the greater good, we can build a world that is sustainable, equitable, and filled with endless possibilities.



Non-fiction

Group 5

The Roads to the Heavens

International Christian School, Chan, Yan Kiu Sherise – 16

Deep in the contoured woodlands of Chongqing, China, is a staircase totaling six thousand, two hundred and eight steps, connecting the old Village of Contentment to the outside world.

The staircase, is not a product of natural erosion by the wind and rain, as seen in many hiking trails today; nor was it a project costing hundreds and thousands by the Chinese government, as seen in their recent efforts to mitigate poverty in isolated, rural areas; but rather, simply an act of love and affection, from Liu Guo-Jiang to his wife Xu Chao-Qing, spanning fifty years, with his bare hands and over twenty shovels. This staircase is now known as the Stairway to Heaven.

It is a considerable thought, that this is not a story unique to Mr. and Mrs. Liu, but rather the story of Chinese inventions over centuries of perseverance, iterations across generations of wisdom. The people of China look to the heavens as they take slow, but steady steps along the road of the cultural exchange of innovations — first with their bare feet, then on rickshaws and camelback, and finally speeding over magnetic levitation, soaring towards the skies they once only dreamed of voyaging towards.

— *In the beginning, the Chinese discovered the heavens.*

As superstitious as the Chinese may seem, the observations on precision placement of constellations in the sky took historical precedence over star signs annotated elaborately on a calendar. First setting their gaze on the heavens in 3000 BC, the first Chinese records of astronomy located circumpolar stars as reference points for what they could identify as ‘heavens’ in the boundless sky.

Astronomical inventions were instrumental to the work of Chinese astronomers, likely due to the precision required of them in their work — one mistake easily led to consequences as severe as getting beheaded. Among the Chinese, the armillary sphere earns its spot as one of the most remarkable of many notable precision instruments, leaving a legacy that traces a rewind in time into the Han Dynasties. Astronomer and financial secretary Geng Shou-Chang is known to be the brain behind the most primitive version of the sphere in Chinese history, the primarily bronze sphere having been birthed in the Western Han Dynasty. Zhang Heng from the Eastern Han Dynasty later became the recipient of the baton in the astronomy relay, taking his place as the creator of a water-powered version of the armillary sphere, known to reflect the astronomical observations with an unmatched precision. In the absence of modern technology such as electricity, satellites and wireless networks, Zhang’s sphere utilized hydropower in a system of gears that shifted the sphere on a weekly rotation, its technicalities truly ahead of its time.

Despite the astounding precision of ancient Chinese astronomers, who could develop entirely original measurements and iterations of these calculations in the absence of modern-day technology, their demanding work remained limited to their scope of discovery. The Chinese had long made the split between astronomy and astrology, whereas the latter was frequently consulted before an Emperor made important decisions and events based on superstitious inferences. It would be many centuries until these highly intelligent scientists’ work could be properly unraveled and recognized; so long that even these astronomers themselves would not have expected their field of study to grow into a fundamental feature of the country’s advancements.

— *In the beginning, the Chinese roamed the earth.*

The Chinese’s shots for the stars did not mean they ceased to roam the earth — not even conquest put an end to these discoveries. The Yuan Dynasty brought about not only a great shift in political power, but also technological breakthroughs amongst cultural exchange. A continuation of a project from the Song Dynasty, Mongol leaders pushed for the establishment of a grand canal stretching across Beijing, the Mongol Capital, to southern regions such as Hangzhou and the Yangtze Basin, purposed for transportation of commodities such as staple crops from locations rich in agricultural harvest to drier lands up north.

There never seemed to be an end to Chinese trade — the Mongol conquests did not put their footsteps on hold, nor did the cyclic rise and fall of every empire. Strongly flowing, travestying from a miniscule, stream-like desire into a river of ideas and trysts, then meeting the sea of endless possibilities under its establishment, trade was

integral not only to the economic sustainability of the civilizations, but also their innovations that stemmed from the imperfections, and a will to nurture their communities into prosperity.

Under the short-lived Yuan dynasty, papermaking and printing works sprung up across the country, particularly in trade cities such as Samarkand. Initially purposed to foster an emergence of Buddhism and religious merit within by spreading concrete copies of sacred texts, the paper-and-print industry rapidly expanded itself to greater purposes. The production of paper money became the first banknotes, designed for convenient trade in place of heavy coins, where each piece of metal only weighed up to a miniscule value compared to the bulk-buy luxuries merchants tended to purchase. The basic technique of ink on paper had its own specialty against fraud — a myriad of elaborate patterns carved on the print. As this leap in economic development brought about flourishing in the trading of numerous unique cultural goods, it unintentionally planted a side effect not even considered in the slightest before money became no longer scarce — inflation, speeding up the dynasty towards its eventual decline.

The prosperous trade networks established by China and its innovations come at a cost — its commute. For the average merchant living through the age of an absence of electricity, or any form of power remotely related to fossil fuel, the world felt much, much larger than it already was. Despite acknowledging the heightened harm of fatigue, or simply, the dangers of having to face nature's hurdles with the limits of the human body, merchants who were unable to resort to a camel or a horse, could only do so with their own body, with no alternative to better withstand the challenges of traveling.

Little did they know, they would be far from this obstacle if only they were born as a Chinese merchant centuries later.

— *The sky is not the limit.*

It would be no surprise that the Chinese share a sentiment for outer space, but what if I say that outer space too, embraces the Chinese?

2021 marked the fruitful harvests of Chinese launch missions since 2016, where the thriving Long March carrier rocket series renewed themselves to a next level of non-toxic and pollution free launches in accommodation to the many launch attempts conducted. Stepping out from the study of the stars from a purely observational approach, China now branches astronomy into seven fields, calling for a shift from astronomy itself in theory, to practicalities that merge the ever-growing discipline with other sciences, including, yet not limited to engineering, information technology and physics. The modernization of Chinese society turned innovation over onto a new leaf of inventions, encompassing the branches of concentrated space exploration, navigation, and even environmental governance within space technology.

In a way, the Chinese continue their conquests — for knowledge beyond their comfort zones of what is known on Earth. As the International Space Station retires in 2024, China will become the only country with a permanent space station, Tiangong, meaning *sky palace*. They have, indeed, conquered for themselves places beyond the Earth; a home in space, a journey to the far side of the moon, (more than) a few exquisite collections of manned and unmanned spacecraft, their names reflecting an originality and perseverance unique to their culture.

This may seem like history repeating itself in a different font — the conquest of the Mongols in the Yuan Dynasty, meeting its rapid decline from an uneven distribution — their excellent abilities to conquer, but unpolished skills in governance. Notwithstanding, the trope *feels* like a similar song, but there is a wild difference that sets the plots far apart: the Mongols were nomads, whereas the Chinese had rooted themselves in their heritage with a profoundness traversing the history books. In fact, the Chinese never ceased to overlook their existing progress throughout astronomy advancements. Establishing a strong satellite network, the Chinese broadcasting services have been one of the most sturdy and self-reliant, expanding its television and mobile service scope to the widest it has ever been for civilians within and beyond the country. These installations layer citizens' wellbeing with comfort and the contentment of accessing entertainment, building upon the firm foundations of China's meteorological satellites, designed to bring security through monitoring weather and natural disaster with precision, accelerating the acute responses to mitigate and relieve disaster efforts in the event of unexpected catastrophes.

It is as if the stars too, have seen the grit in this civilization's efforts to journey from only seeing them from far below, yet being able to learn about them with precision, to eventually, slowly but surely, on their way to reach them. The Great Wall of China is not the only thing that can be seen from space — the blood, sweat and tears behind the walls hold no voice, yet speak their deafening volumes.

— *Meandering, Gallivanting*

Past the bolstering pace in developments of the industrial revolution, the Chinese have long since journeyed everywhere with more than their feet, but rather developed a variety of vehicles designed to bring us to and fro between destinations far and near.

Present-day urban Chinese infrastructure accounts for routes and paths specifically designed for scooters and bicycles in place of heading between locations by foot, as well as being one of the leading countries to successfully facilitate shared transportation in the form of rental bicycles and scooters, often conveniently set at public parking spaces for these alternative vehicles, that take up less space and are often more eco-friendly than fossil-fueled cars. Across the rooster-shaped map encompassing China's many large provinces, China first developed its high-speed rail in 2008 between Beijing and Tianjin. Closely following the establishment, the Shanghai Maglev makes use of magnetic levitation rather than traditional track, giving itself the name of the world's fastest commercially operated train at a top speed of 431 kilometers per hour. China's railroads have continued to expand rapidly since then, currently possessing a network spanning over 40,000 kilometers, with the ambitions to reach 200,000 kilometers in 2035.

Over time, China has purposed its advancements in technological inventions to highlight an increase in efficiency, most notably seen through the amount of time each accelerated innovation saves. Within the commercial world, not only have the Chinese strived to close the distance between lands to shorten the amount of time in commute, but also reduce complex or repetitive procedures for purchases and trade. The rise of Alipay, the digital wallet, moves the country away from banknotes and their long-standing history to an economic ecosystem where scan-to-see, tap-and-pay becomes the epitome of urban transactions. Alipay's biggest competitor, WeChat Pay, pushes the all-in-one narrative further — set as merely one function in the multipurpose application, many Chinese civilians can simply install a single software in their phones — WeChat, and possess a multitude of functions such as reels, blogs, chats, games, online magazines, health declarations, and many more.

Believe it or not, the bar for the merchant industry has since lowered over centuries, as the risks have too. As a merchant throughout the Chinese Dynasties, one would have to endure the physical challenges of simply getting around to the most profitable spots within and beyond the country, having to painstakingly abandon their family for extended periods of time in the process. But the times have changed. Commerce is no longer the no-go cautioned against, leaving its reputation of being reserved for the ambitious in the dust. The strands of the web of Chinese innovation from astronomy continue to leave its lasting impacts on the country's internal developments, an immensely secure satellite network laying down the solid groundwork for trade to shift from real life to the internet, merchants now not even having to set foot beyond the comfort of their own homes in the extreme, a yield from the establishment of vast online shopping and payment platforms facilitated by China's very own satellite network.

Perhaps the merchants from the ages set in stone (bamboo, and the printing press too) would have chosen to reincarnate as a merchant today, simply to opt for a taste of the joys in the smooth exchange the Chinese have since brought themselves upon.

— *What next?*

The Chinese have long since progressed along the stairway to heaven with their leaps and bounds in innovation. In just a few thousand words, we have witnessed a marathon in which they may fall, down or behind; they may be put on hold entirely; they may be sighing in exhaustion of this long, uneasy run. Yet we see much more, of their stamina, their unceasing efforts to pass the spirit along with the slap of a palm, and most of all the epiphanies in smothering the cervices of imperfections that do none, but become the drive for them to rise after each fall, to pass finish line after finish line, and still run its course to achieve the impossible, as a river would flood each step of a staircase to the skies with its currents.

As part of human history, we have come so far; we have *only* come so far. And so, we proceed to ask ourselves; *where*, are the heavens we are trying to reach? *Which*, are the roads we are trying to plow through? *How*, should we tread, or sprint, or climb, or soar along our paths to the ever-changing, ever-renewing, ever-vast world of innovation? We are certainly not the first to do so, nor will we be the last — these are questions the intelligent Chinese also pose.

In fact, it is a common assumption to define a causal relationship between the Chinese and their inventions, rooted in the belief that it is only through continuous, repeated attempts and mere grit to achieve a certain technological advancement that spins the wheels of human history and its development. This extensive legend says

otherwise — gallant with the revelation that it is in fact, reciprocal between themselves; as water does so with the light: they flow freely, determined to renew themselves in a better form; they soar towards the heavens, the birth of a new transformative invention; and they fall — not with resignation, but with pride and joy, freely back again, into the flow which soon drives them to yet another peak of new discovery. They are the dewdrops upon a spiderweb of interconnected innovations within society. They are the oasis of rest and regeneration amidst a desert of ageing ideas in which freshness fades faster than ever before. Over centuries, the Chinese have built a fountain from tears of tediousness that springs the sweat of success.

An accident at home escorted 87-year-old Liu Guo-Jiang to his last breath, departing from the world where his wife remains with the Stairway to Heaven. Nevertheless, his love remains within each of the six thousand, two hundred and eight steps in Chongqing. Chinese inventors too, have since paved their road to the heavens, a steeply long-winding road stretching across space and time. Likewise, their achievements fade not over the passage of time and the shift of runners in the marathon, droplets in the currents, but remain in the passion and love they hold for each novel creation from their culture. Divergently, the steps they climb never cease; the roads to the heavens are ever changing and growing, with every path they build with their own hands.

New Tales of China's Inventions: Acupuncture: the past, present and future

Maryknoll Convent School (Secondary Section), Wong, Hiu Ka Kabi – 16

China is a land of invention and creation, where many such innovative inventions have been created to completely rewrite the history of mankind. China never stops surprising the world with its remarkable inventiveness, from papermaking to mobile payment systems. The technologies that continually set new boundaries of the world allowed people to witness the constant waves of tales about China's inventions. As we enter a new era, it is important for us to look back at our previous inventions so that we can understand more about what future discoveries will emerge. One of the past inventions, acupuncture is widely practised though few people know its origin.

Acupuncture is an ancient medical practice rooted in China that became increasingly popular all over the world, especially among Western countries, during recent years. The power of healing through acupuncture is still an amazement to the world due to its non-invasive and holistic treatment approach. Acupuncture has its origin in ancient Chinese philosophy, from the concept of yin and yang, that is the balance, circulation of Qi (pronounced "chee"), which means life force or life energy. This concept proposed that if the flow of Qi is imbalanced and interrupted, it can result in illnesses and physical issues. These philosophical principles led to the development of acupuncture as a way through which balance and harmony can be restored in the body.

The first proof about acupuncture goes back to the time of Shang Dynasty (1600–1100 BC) in China. At this time, bone needles and sharp stones were put in the skin at definite points along the body's meridians. These are the channels that are believed to transport Qi in all parts of the body. These early acupuncturists were dependent much on natural observation to observe the works and disturbances of the human body.

Over the ages, acupuncture developed and during the Han Dynasty (206 BC – 220 AD), a medical compendium called Huangdi Neijing or The Yellow Emperor's Inner Canon was created which helped to standardise acupuncture treatment. The meridians, the points of acupuncture and their curative effects are discussed in full measure. As inner Canon integrated acupuncture as one of the major treatises on Traditional Chinese Medicine (TCM), it became its foundation for further development.

In the 19th and early 20th centuries, acupuncture's long history was interrupted by a new phenomenon – Westernization that led to the development of modern medicine. By the time of the May Fourth Movement, acupuncture techniques were widely ridiculed and had become obsolete in the Western world even inside China. But acupuncture was revived in the 1950s when Chairman Mao Zedong, leader of People's Republic of China spoke well about traditional Chinese medicine and that it had a lot to offer. This led to the establishment of acupuncture clinics and the popularity once again.

In the modern era, acupuncture is admitted as a complementary and alternative medicine (CAM) practice. While its efficacy has been substantiated by numerous scientific research, the mechanism of actions is not yet fully understood. It is believed that introducing thin, sterile needles into particular acupuncture points stimulate the nervous system and release endorphins which promote self-healing by the body.

Nowadays, acupuncture is practised in many parts of the world and several regulations have been set to ensure that it becomes safely used. It is frequently valued for pain relief, stress control and overall well-being. In the Western

world, acupuncture is often used as an integrative treatment apart from standard medicine where it involves both traditional and modern methods.

In short, acupuncture is an ancient Chinese practice that forms part of traditional Chinese medicine. So based on the philosophies of yin–yang and circulation of qi, it has been utilised as a way to restore balance in an individual's body hence promoting healing for thousands of years. While acupuncture has had its fair share of hurdles in the past, it is still considered an essential and respected form of medical practice that enjoys worldwide recognition. Its ongoing development and distribution also show its continued significance in medicine.

Chinese inventions

Pui Kiu College, Lee, Ying On – 17

Whenever we talk about Chinese invention, we always think of papermaking, printing, gunpowder and the compass – the four great inventions of ancient China which have significant contributions of the Chinese nation to world civilization. Counting the impressive, splendid invention from China in the epoch of technology, artificial satellite, the space station, electric vehicles, the evolutionary 5G and 6G are of top-notch. However, in my point of view, the most worth mentioning Chinese invention is the hybrid rice, not only it is a revolutionary act, but also it benefits all of people of the globe and contributes a lot to our daily lives in terms of food supply and details of it are expounded below.

The current food crisis is probably the worst in a decade. With the consequences of climate change coinciding with trade restrictions and conflict, years of progress in the battle against hunger and poverty are being rapidly reversed. Many countries are responding with policies that amount to food protectionism, which on a global level will only lead to further food insecurity as richer countries outcompete poorer ones in the race for scarce resources. The majority of analysts believe there is an urgent need to make structural changes to global food systems, rooted in both sustainable food and agricultural practices and adequate planning.

Yuan Longping, the world-renowned “Father of Hybrid Rice,” is an outstanding agronomist from China and winner of multiple awards including the National Science and Technology Award, the WIPO Gold Medal for Inventors, the UNESCO Science Prize, and the World Food Prize. He has devoted to hybrid rice research since his early 20s and has established a technological roadmap for super hybrid rice breeding. His accomplishments have contributed to China’s food self-sufficiency and the world’s food security.

Hybrid rice can be divided into three categories of strategic development: the three-line method, the two-line method, and the one-line method. As the application method becomes simpler, the efficiency increases. The level of [heterosis](#) is increasingly strong, which varies from species to subspecies and even includes distant heterosis.

The three-line method utilizes heterosis in the following three lines: the nucleo-cytoplasm interaction male sterility line (i.e., male-sterile line), the male sterility maintenance line (i.e., maintainer line), and the male sterility recovery line (i.e., restorer line). The male-sterile line provides a material basis for the production of a large number of hybrid seeds, the [maintainer line](#) is used to propagate the sterile line, and the [restorer line](#) is used to pollinate the sterile line to produce male-recovered hybrid rice seeds with heterosis. Chinese three-line hybrid rice was first used successfully in 1973, becoming a classic method of utilizing heterosis.

The two-line method requires only sterile lines and restorer lines to utilize heterosis, while the most successful method is to utilize photo-thermo-sensitive genic male-sterile (PTGMS) lines, which display male sterility during long days and high temperatures, and [male fertility](#) during short days and low temperatures. Hybrid seeds are produced during the sterility period and sterile lines are produced by inbreeding during the fertility period, [rendering](#) the maintenance line unnecessary.

Two-line hybrid rice was a significant scientific and technological achievement for China’s agricultural community. First achieved in 1995, its annual planting area now accounts for more than 50% of hybrid rice varieties. The achievement “Research and Application of Two-line Hybrid Rice Technology” won the 2013 National Science and [Technology](#) Progress of China Special Prize. Third-generation hybrid rice, which can also be considered as a

two-line method, in a sense, achieves heterosis through the self-breeding of common recessive nuclear male-sterile lines via genetic engineering technology. These varieties are currently being tested for production.

One-line hybrid rice breeds hybrids with fixed heterosis and no separation, and does not require annual hybrid seed production. This technology is still being developed.

China has been a leading exporter of hybrid rice. Hybrid rice technology is listed by the [Food and Agriculture Organization](#) of the United Nations as the preferred method for increasing [food production](#) and solving the problem of food shortages in developing countries. Many people come to China to study and exchange information about hybrid rice technologies, including senior experts from the United States, [Japan](#), and India. At present, Chinese hybrid rice has been successfully tested or developed in more than 60 countries including India, Bangladesh, Vietnam, the Philippines, Pakistan, the United States, Indonesia, Myanmar, [Brazil](#), and Madagascar, with planting areas exceeding $6 \times 10^6 \text{ hm}^2 \cdot \text{a}^{-1}$. In this way, China is providing a solution to global food-shortage problems.

When grown under the same conditions as comparable purebred rice varieties, it can produce up to 30% more yield. there are more than 2.2 billion acres of rice fields in the world, covering 150 million hectares. If half of them, 75 million hectares, are planted with hybrid, assuming an increase in yield of 2 tons per hectare, 75 million hectares will produce an additional 150 million tons of rice, which can feed around 400 to 500 million people. Take the Philippines as an example: Since 1995, the Philippines has taken the development of hybrid rice as a strategic decision to solve food problems and develop the economy. In 2005, the area planted with hybrid rice reached 370,000 hectares, with an average grain yield of 6.5 tons per hectare, which is 80% higher than the average yield of other conventional rice. In essence, the hybrid rice is indeed imperative to all residents of the world, it increases food supply, and ease food shortage to a large extent. So, among all the superior invention made from china, hybrid rice is definitely the most honourable, it contributes significantly to all of us, it leads us to better lives, a better world. In conclusion, through unwavering dedication, Chinese scientists successfully invented the hybrid rice, improving the breeding method from three line to two line, and it is envisaged that there will be one line in the future, and I believe it can come true.

China's Inventions and Why Are They So Important

St. Joseph's College, Lee, Cyrus Chi Hin – 16

According to the statistics released from the China National Intellectual Property Administration (CNIPA), from January 2023 to July 2023, the number of invention patents granted in China was 515,000, with a year-on-year growth of 9.49%. The innovative industry in China is emerging, however why are inventions so important such that not even the society pursues new inventions, but also the government is determined to expand this industry? The 'Three Step' Development Strategy established by the Chinese Government has 3 stages: The first stage in 2020 aimed to develop an innovative system with Chinese characteristics; during the second stage in 2030, China will surpass USA to become the top innovative country; finally at the last stage in 2050, China hopes to become world dominant power in science and technology. In what ways inventions are important? This will be discussed in the remainder of this essay.

First and foremost, how did the Chinese create their own inventions? What makes them different from other cultures so that they can have their own unique inventions? The Chinese nation is known for their diligence and their strict education to children. Yet in an era which demands innovative ideas and creative thinking, are these really the key elements which has brought them to their success? Personally, I think to invent a brand new design, circumspection and flexibility is the most important traits one must own.

To begin with, investors has been carefully observing details that appear in our daily life, has been inspired by these signs, and has came up with ideas which then successfully turns into reality. Cai Lun, the inventor of paper, by observing the way how paper wasps made their nests, he noticed that he could produce paper from a similar fashion therefore he came up with his new method of making paper: using bamboo, hemp waste, old rags, fishnets and bark from trees as the materials. The materials were boiled to a pulp that was beaten with a wood or stone mallet before being mixed with a large amount of water, at last processed with wooden sieves and removed from excess water to make paper. Had Cai Lun not been inspired by the way paper wasps make their nests, he would not have come up with this invention which benefited human civilization to this date.

Moreover, a person needs to have a flexible mind to come up with ideas which are astounding enough to keep them unique. Dayu, the inventor of chopsticks, invented chopsticks out of sheer starvation. On a cold and windy night, when Dayu was cooking meat in a pot to compensate for his hunger, he suddenly realized that the meat was too hot for one to use bare hands to fetch it. He saw a tree and cut its branches off, then used 2 of the straws to clamp the meat from the pot. Dayu's flexible mind has allowed him to discover the limitations of humans, and how we can make use of tools to solve problems. To summarize, inventions are made only when people are circumspect and flexible.

Now we know that the Chinese have achieved their success because of their circumspection and flexibility, you may wonder: Why is it so important to make inventions then?

How is the innovative industry so powerful in a way such that no other jobs can substitute it?

Firstly, each invention is a commitment to the society, and in the long term inventions might lead to the prosperity of a country. In other words, inventions improve our society and increase the quality of people's lives. The BeiDou Navigation Satellite System was invented and gradually applied in China, installed in vehicles and fishing vessels to assist navigation and to tackle emergency situations or remind motor vehicles of road accidents, fishing vessels of bad weather by knowing the latest changes in traffic or weather. By reducing the number of accidents and the impact of accidents, the efficiency of urban life has been facilitated. Additionally, people's livelihood and even national security has been improved. In such ways the society has been benefited. To think further, the BeiDou Navigation Satellite System can greatly reduce the number of deaths in China every year, promote China into a safe country and further contribute to the prosperity of China. This tells us that inventions can have a major impact on a country as time goes by.

Furthermore, inventions aid the survival of humans. To elaborate more, inventions keep human civilization alive so that civilization does not break down. Using 5G communication technology as an example, it has already covered 95% of China's territory, and although it gave birth to new technologies such as unmanned aerial vehicles, smart cities and even smart healthcare, most crucially it supported the mobile network of the 1.4 billion people in China. Imagine if 5G communication technology never existed, what would happen to those 1.4 billion people? Without a network, they would not have been able to call food delivery for a takeaway lunchbox, keep in touch with the Internet, or even communicate with their loved ones to tell them that they are safe through mobile apps such as LINE or WeChat. How would humans adapt to such an environment in a short period of time? Order would have been disrupted, chaos would have been everywhere, everyone in the world would have been driven mad! We should be grateful that inventions are satisfying different needs of humans so that civilization is kept unharmed until today.

You may be asking yourself, why are these dumb people not caring for their own fame or benefits but are serving the community? Well, we have seen how inventions changed other people's lives. However, does that mean Cai Lun or Dayu do not live on other people's inventions? Certainly not, one cannot invent all the inventions therefore humans sometimes need to fetch their companions for help when they are in vain. Always remember that humans are interconnected and can only live interdependent lives. If the rest of the world died, one would not be able to survive as he needs other people's help with affairs he cannot manage alone; these wise scientists have realized that humans cannot sweep the snow from their own doorstep. As another human being, we should also remember their spirit: to care for others and lend them a helping hand, so that we can pass on human civilization to the next generation.