Early Chinese people wrote records on silk or bamboo however each of these was expensive and difficult to produce. Paper was first invented in China during the Han dynasty around 105 AD by a government worker called Cai Lun. He developed a way to make paper using the bark of trees and rags of cloth.

Paper was made by creating a mix of bark and rags that would float on water. The water was then drained away leaving a thin layer which would then be dried into a large sheet of paper. This large sheet could then be cut into smaller pieces. The Chinese emperor was so pleased with Cai Lun that he gave him a noble title as well as a huge amount of money.

Cai Lun's invention allowed Chinese people to spread ideas and literature much more quickly than they could have done if they still had to write on silk or bamboo. By the 700s AD paper making had spread to Korea and Japan. In 751 several Chinese paper makers were captured by Muslims who then learned how to make paper themselves. By the 1200s paper making had reached Europe where it was hugely important in spreading knowledge.

Despite his huge achievements Cai Lun's life ended in tragedy. In 121 AD a new emperor came to power and ordered Cai Lun to report to prison. Rather than go to prison Cai Lun committed suicide by drinking poison.
WOODBLOCK PRINTING - 活字印刷术

Before the invention of printing everything had to be written by hand. This took a long time and meant that books and other written materials were very rare and expensive. Around 220 AD the Chinese began printing pictures on silk and other fabrics. Then around 650 AD they began printing on paper using wooden blocks.

Woodblock printing works by carving words or pictures onto a large block of wood. Once carved ink is then spread across the block and then sheets of paper are pressed against it. The most difficult part of the process is to remember that images or text has to be carved in reverse so when the paper is pressed on it it creates an image the right way.

Woodblock printing was used mostly to print religious books. The most famous book printed during the Tang dynasty was the Diamond Sutra. This huge book included pictures and text and helped to spread Buddhism throughout China.
GUNPOWDER - 火药

Before the invention of gunpowder all weapons had to be powered by hand. Even large weapons like catapults needed human power to wind them up. Early weapons also could only be thrown short distances. Because of this most fighting was done very close using swords and shields with soldiers wearing armor to protect themselves. Many cities also protected themselves by building huge walls knowing that they could not be destroyed by an enemy using catapults.

In the 900s Chinese alchemists began looking for a substance that would grant the person who ate it immortality (eternal life). They mixed together various substances but then they found that one of these mixtures would explode when lit. By the 1100s the Chinese had found hundreds of different recepies for gunpowder. The earliest use of gunpowder was in fireworks which were used to chase evil spirits away. However, by the 1200s, the Chinese had begun to use it in weapons such as guns and bombs.

By 1250 Muslims had learned how to create gunpowder which they used to defeat their rivals and expand their empire. The most famous use of gunpowder was during the capture of Constantinople by the Ottoman Turks in 1453. The Ottomans used huge cannons to blow apart the Theodosian walls that had protected the city for over 1000 years. Knowledge of gunpowder soon spread into Europe with the first picture of a gun dating from 1300.

After the invention of gunpowder many armies began using cannon and guns. Although soldiers fighting with swords and armor didn't disappear until the 1800s they slowly became less important. Building also changed with cities stopping building walls to protect themselves as these could be easily destroyed by cannon. Gunpowder was also used for other things such as mining and the construction of canals and tunnels as it could be used to quickly blast away rock.
WOODBLOCK PRINTING could be used to create large numbers of books and other printed materials however it did have one big disadvantage. Once carved the block could only be used to create a single page. In 1040 AD a man named Bi Sheng improved things by inventing movable type printing.

Movable type worked by carving a single Chinese character on a block of wood, clay, or metal. These could then be combined with other characters to create words, sentences, or whole pages. Once printed these letters could then be separated and reused to create a whole new page.

Although movable type was more flexible than woodblock printing it did have one major disadvantage in China. The Chinese language does not have an alphabet and uses thousands of different characters (small pictures) to represent sounds and ideas. Combining these different characters and organizing them would take a long time. However movable type was useful in printing large numbers of documents as well as money as the amount printed on the money could be quickly changed if needed.

Like many other Chinese inventions the Muslims were the first to adopt it then passing on the knowledge to Europe. By the 1450s printing had spread to Europe.
THE COMPASS - 指南针

Before the invention of the compass people navigated by using landmarks like mountains and rivers to tell where they were. Travel over land was not too difficult but travelling at sea was almost impossible unless the ship stayed close to land. This however was very dangerous as there were many dangerous rocks and reefs close to shore that could sink a ship. Sailors also had to cope with bad weather and fog which could easily lead them off course.

During the 400s AD the Chinese discovered magnetism – a force that attracts or repels objects (this is the same force that makes magnets cling to a fridge door). The Chinese first used their knowledge of magnetism to assist them in telling peoples fortunes according to their belief in Feng Shui.

Around 1000 the Chinese began using magnetic compasses for navigation. The earliest navigational compasses were suspended in water. Later compasses were placed on a metal plate. Because these compasses were used at sea they quickly spread throughout Asia, the Middle East, and Europe. Using these compasses sailors could sail farther away from land and even through bad weather without losing their way. This encouraged the spread of trade and made many cities wealthy. Sailors would eventually use compasses to help them cross whole oceans allowing them to settle new lands.
PAPER MONEY - 交子

For most of human history people used precious materials like gold, silver, and copper for money. These were melted down into bars and coins which were then traded. This became known as specie money (meaning money in coins). The obvious disadvantage of this was that it would be difficult to move large amounts of money around both because of the weight and the risk of it being stolen.

During the Song Dynasty trade expanded rapidly in China and many merchants needed a new way to move money around. The government started printing paper money as a way to make trade easier. Paper money was only accepted because it was backed by the government and the promise that if the holder wanted to it could be exchanged for gold or silver if requested. This type of money is called fiat money (from a Latin word meaning “let it be done”)

Paper money did help trade but it also had huge risks. The paper could be easily destroyed or stolen. However the biggest danger was that governments would print too much money causing something called inflation. Inflation is when there is too much money and not enough things to buy. As a result prices start to go up quickly – this is called inflation. This happened in China during the 1300s and 1400s which caused huge damage to the economy as people began to distrust the paper money. In the end the Ming Dynasty got rid of the paper money in the 1500s.

Despite this early failure paper, or other fiat money like debit and credit cards, were adopted by many other countries during the 1900s. It is now the major way that people buy goods and services.