

Chinese Inventions/Achievements

Grade Level: Upper Elementary/Middle School	Subject: ESL	Prepared by: Jessica Burchett
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Objectives

Content: Social Studies	English Language Proficiency Standards
<p>People In Societies, Diffusion: <i>Describe the cultural and scientific legacies of the Chinese.</i></p> <p>History, Early Civilizations: <i>Describe the enduring impact of early civilizations in China after 1000 B.C. (including scientific and cultural advancements)</i></p>	<ul style="list-style-type: none"> • Read, write, and speak for varied purposes. • Identify main ideas and supporting details of spoken and written English.

Essential Questions	<ol style="list-style-type: none"> 1. What are some important inventions/achievements of China? 2. How do the Chinese inventions impact our lives today?
Content Vocabulary	<p>Invention</p> <p>Achievement</p>
Materials Needed	<p>15 stations set up in the classroom</p> <ul style="list-style-type: none"> • Physical examples of item • Physical replicas of items • Information about Common uses of items • Description of item • Facts about item <p>Each student needs a Chinese Inventions/Achievements chart</p> <p>Large chart similar to student worksheets</p> <p>Each student needs a QUICK-WRITE question form.</p>
Lesson/Application	<p>Students will be divided into groups of 3 or 4. The students will then be taken out of their group in order to rotate around the stations. Each student in the group will be given an A, B, or C label. As will rotate together, All Bs will rotate together, All Cs will rotate together. After the rotation, they will get back with their original group to share what they have learned. (JIG SAW activity) Each student will have learned about 4 different inventions/achievements of the Chinese.</p> <p>After all groups have finished: As a class make a group chart with the information about the different inventions/achievements.</p>
Review and Assessment	<p>Quickwrite:</p> <p>What do you think was the most useful invention? Why?</p> <p>What do you think was the least useful invention? Why?</p>

Name _____

Date _____

CHINESE INVENTIONS/ACHIEVEMENTS

Please complete the chart below as you go from station to station. Be prepared to share your information with your group.

Name of Invention	Picture of Invention	Purpose of Invention	Today's uses of Invention	Additional Fact	Additional Fact

Name _____

Date _____

QUICK-WRITE

What do you think was the most useful invention? _____

Why? _____

What do you think was the least useful invention? _____

Why? _____

LIST OF CHINESE INVENTIONS/ACHIEVEMENTS

I COPIED THE FOLLOWING EXAMPLES FROM THE INTERNET (I am still in the process of trying to find more ideas/relevant to students)

Invention	Purpose of Invention	Picture
<p>Silk</p>	<p>The Chinese knew how to produce silk at least by 1300 B.C., but not until the second century B.C. did it begin to be exported to Europe, and not until about 550 A.D., when monks who had traveled to China brought back silkworm eggs, did the West learn the Chinese secret of silk-making.</p> <p>The Chinese traded silk with the Roman Empire and then with Byzantium. In return they received such items as wool, glass, and asbestos. Through the silk trade the world's two great empires in the first century A.D. Rome and Han China - were linked, mainly because Roman women wore Chinese silks. The overland trade route between China and the Mediterranean was called the "Silk Road" because China exported so much of this fabric to the West</p> <p>Silk: The oldest silk found in China comes from the Chinese Neolithic period and is dated to about 3630 BC, found in Henan province.^[108]</p> <p>Silk items excavated from the Liangzhu culture site at Qianshanyang, Wuxing District, Zhejiang date to roughly 2570 BC, and include silk threads, a braided silk belt, and a piece of woven silk.^[108] A bronze fragment found at the Shang Dynasty (c. 1600–c. 1050 BC) site at Anyang (or Yinxu) contains the first known written reference to silk.^[109]</p>	 <p>Ladies processing new silk, early 12th century painting in the style of Zhang Xuan, Song Dynasty</p>
<p>Tea</p>	<p>Tea drinking originated in China and spread throughout the world. Whether a country calls the beverage "tea" (or some variant thereof) or "chai," as in Russia, depends on whether it came over the sea route or the land route from China. The sea route originated in Fukien province on China's coast, where the word for the drink in the Fukien dialect is "te." The land route originated to the north, where the term for the drink is "cha," Even today in northern England, people often speak of "having a cup of cha," although the more common term in England is "tea."</p> <p>The tea plant is indigenous to western Yunnan,^[506] by the mid 2nd millennium BC, tea was being consumed in Yunnan for medicinal purposes.^[507] It was introduced from Sichuan to the population of northern China and middle and lower Yangtze River around the 2nd century BC. Tea drinking was already an established custom in the daily life in this area as shown by the Contract with a Slave, written by Wang Bao in 59 BC.^[508] This written record also reveals that tea, used as a drink instead of a medicinal herb, emerged no later than the 1st century BC.^[509] Early Chinese tea culture began from the time of Han Dynasty (202 BC–220 AD) to the Southern and Northern Dynasties (420–589) when tea was widely used by Chinese gentry, but only took its initial shape during the Tang Dynasty (618–907).^[510] Utensil like handle-less tea bowl which first appeared in the Eastern Jin Dynasty (317–420), became popular among the tea drinkers of Tang.^[511] The first book about tea was written by Lu Yu (733–804) in his The Classic of Tea.^[512]</p>	

	<p>Toilet paper: Toilet paper was first mentioned by the official Yan Zhitui (531–591) in the year 589 during the Sui Dynasty (581–618), with full evidence of continual use in subsequent dynasties.^{[525][526]} In the year 851 during the Tang Dynasty (618–907), a Muslim Arab traveler from the Middle East commented that the Chinese used paper instead of water to clean themselves while going to the bathroom.^[525] By the mid 14th century during the Yuan Dynasty (1271–1368), it was written that ten million packages of 1,000 to 10,000 sheets of toilet paper were manufactured annually in Zhejiang province alone.^[525] It is also written that emperors of the Ming Dynasty (1368–1644) used perfumed toilet paper.^[525]</p>	
<p>Porcelain</p>	<p>Porcelain, also called "china," is a type of clay pottery that was invented in China by using clay with special minerals. Chinese porcelain was exported throughout the world, and eventually the secret mineral ingredients were discovered by Europeans in 1709. Europeans began to experiment with porcelain making only after they saw and admired the Chinese porcelains</p> <p>Porcelain: Although glazed ceramics existed beforehand, S.A.M. Adshead writes that the earliest type of vitrified, translucent ceramics that could be classified as true porcelain was not made until the Tang Dynasty (618–907).^[446] Nigel Wood states that true porcelain was manufactured in North China from roughly the beginning of the Tang Dynasty in the 7th century, while true porcelain was not manufactured in South China until about 300 years later, during the early 10th century.^[447]</p>	
<p>Paper</p>	<p>Paper was first invented in China about 105 A.C. Its use then spread to Chinese Turkestan in central Asia, the Arab world (c. 751 A.D.), Syria, Egypt, Morocco, Spain (c. 1150 A.D.), southern France, and the rest of Europe.</p> <p>11. Paper: China, Second Century BCE. Papyrus, the inner bark of the papyrus plant, is not true paper. Paper is a sheet of sediment which results from the settling of a layer of disintegrated fibers from a watery solution onto a flat mold. Once the water is drained away, the deposited layer is removed and dried. The oldest surviving piece of paper in the world is made of hemp fibers, discovered in 1957 in a tomb near Xian, China, and dates from between the years 140 and 87 BCE. The oldest paper with writing on it, also from China, is dated to 110 CE and contains about two dozen characters. Paper reached India in the seventh century and West Asia in the eighth. The Arabs sold paper to Europeans until manufacture in the West in the twelfth century.</p>	
<p>Printing</p>	<p>The Chinese invented both block printing, to reproduce the Confucian classics that had often been carved on stone, and moveable type. It appears that Europe learned about block printing from China and did not invent it separately.</p> <p>One possible source of the spread of block printing from China is playing cards, which the Chinese also invented and introduced to Europe. Another source is paper money, first printed in China in the tenth century A.D. and later introduced to Europe.</p> <p>Woodblock printing: The earliest specimen of woodblock printing discovered 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.^[15] 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</p>	

	<p>Zetian (r.690–705), is dated no earlier than 704 and preserved in a Silla Korean temple stupa built in 751.^[16] 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, or the "fifteenth day of the fourth moon of the ninth year" of Emperor Yizong's (859–873) Xiantong 咸通 reign period.^[17] Joseph Needham and Tsien Tsuen-Hsueh 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.^[17] The two oldest printed Chinese calendars are dated 877 and 882; they were found at the Buddhist pilgrimage site of Dunhuang; Patricia Ebrey writes that it is no surprise that some of the earliest printed items were calendars, since the Chinese found it necessary to calculate and mark which days were auspicious and which were not.^{[17][18]}</p>	
Gunpowder	<p>Gunpowder was invented in China c. 1000 A.D. and probably spread to Europe during the Mongol expansion of 1200-1300 A.D., but this has not been proven. The use of gunpowder in Europe was first recorded in 1313. Europeans used gunpowder for cannons, while the Chinese used it primarily for firecrackers. Despite such early knowledge of explosives and their use, China did not pursue the development of weaponry as did the West; ironically, it was through the use of cannons and guns that the Europeans were able to dominate China in the mid-to late-1800s.</p>	
Grain storage	<p>Henry A. Wallace, the U.S. Secretary of Agriculture from 1933 to 1940, introduced governmental storage of excess grain after reading the dissertation of a Chinese student at Columbia University on Confucian economic policies. Wallace adapted the Confucian notion of government grain purchases to provide for times of scarcity, and he introduced the practice in the U.S. to deal with over-production due to mechanization and the resulting drop in agricultural prices</p>	
Alchemy (Chemistry)	<p>The Taoist search for the elixir of life (a life-extending potion) led to much experimentation with changing the state of minerals. The Chinese practice appears to have spread first to the Arab world and then to Europe. Chinese alchemy predates that of the Egyptians in Alexandria and other cities by about two centuries, beginning by 133 B.C.</p>	
Compass	<p>Historians believe that the Chinese invented the magnetic compass and used it for navigation c. 1100 A.D. Arab traders sailing to China probably learned of the Chinese method of sailing by compass and returned to the West with the invention.</p>	
Civil Service	<p>Exams for government service were introduced in both France and England in the 1800s, apparently inspired by the Chinese practice instituted almost two thousand years earlier, in 154 B.C.</p>	
Wheelbarrow	<p>There is scanty linguistic evidence that wheelbarrows (i.e. the hyperteria monokyklou, or 'one-wheeler') might have existed in ancient Greece by the late 5th century BC,^[544] but it has been commonly accepted that the wheelbarrow did not exist in Europe until the 13th century AD,^[545] while their use in Western Han (202 BC–9 AD) China by the 1st century BC is attested to by written evidence; illustrations of their use were depicted on tomb murals in China by the 2nd century AD, during the Eastern Han (25–220 AD).^{[546][547]}</p> <p>. The Wheelbarrow: China, First Century BCE. Wheelbarrows did not exist in Europe before the eleventh or twelfth century (the earliest known Western depiction is in a window at Chartres Cathedral, dated around 1220 CE). Descriptions of the wheelbarrow in China</p>	

	<p>refer to first century BCE, and the oldest surviving picture, a frieze relief from a tomb-shrine in Szechuan province, dates from about 118 CE.</p> <p>3. The Moldboard Plow: China, Third Century BCE. Called kuan, these ploughshares were made of malleable cast iron. They had an advanced design, with a central ridge ending in a sharp point to cut the soil and wings which sloped gently up towards the center to throw the soil off the plow and reduce friction. When brought to Holland in the 17th Century, these plows began the Agricultural Revolution</p>	
Paper Money	<p>4. Paper Money: China, Ninth Century CE. Its original name was 'flying money' because it was so light it could blow out of one's hand. As 'exchange certificates' used by merchants, paper money was quickly adopted by the government for forwarding tax payments. Real paper money, used as a medium of exchange and backed by deposited cash (a Chinese term for metal coins), apparently came into use in the tenth century. The first Western money was issued in Sweden in 1661. America followed in 1690, France in 1720, England in 1797, and Germany not until 1806.</p>	
Matches	<p>Matches: China, Sixth Century CE. The first version of the match was invented in 577 CE by impoverished court ladies during a military siege. Hard pressed for tinder during the siege, they could otherwise not start fires for cooking, heating, etc. The matches consisted of little sticks of pinewood impregnated with sulfur. There is no evidence of matches in Europe before 1530. Match, non-friction: The earliest type of match for lighting fire was made in China by 577 AD, invented by Northern Qi (550–577) court ladies as they desperately looked for materials to light fires for cooking and heating as enemy troops of Northern Zhou (557–581) and the Chen Dynasty (557–589) besieged their city from outside.^[406] Early matches in China were designed to be lit by an existing flame and carried to light another fire. They were pinewood sticks impregnated with sulfur and needed only a slight touch from a flame to light.^[406] This was written in the Records of the Unwordly and Strange by Tao Gu in 950 (Five Dynasties and Ten Kingdoms Period), who also wrote that they were once called "light-bringing slaves" before they were commercially marketed as the 'fire inch-stick'.^[406] The self-striking, friction match was not made until 1827, an invention of John Walker.</p>	
Kite	<p>The Kite: China, Fifth/Fourth Century BCE. Two kitemakers, Kungshu P'an who made kites shaped like birds which could fly for up to three days, and Mo Ti (who is said to have spent three years building a special kite) were famous in Chinese traditional stories from as early as the fifth century BCE. Kites were used in wartime as early as 1232 when kites with messages were flown over Mongol lines by the Chinese. The strings were cut and the kites landed among the Chinese prisoners, inciting them to revolt and escape. Kites fitted with hooks and bait were used for fishing, and kites were fitted with strings and whistles to make musical sounds while flying. The kite was first mentioned in Europe in a popular book of marvels and tricks in 1589.</p>	

<p>Suspension bridge using iron chains</p>	<p>Suspension bridge using iron chains: Although there is evidence that many early cultures employed the use of suspension bridges with cabled ropes, the first written evidence of iron chain suspension bridges comes from a local history and topography of Yunnan written in the 15th century, which describes the repair of an iron chain bridge during the reign of the Yongle Emperor (r. 1402–1424); although it is questionable if Ming Dynasty (1368–1644) Chinese claims that iron chain suspension bridges existed since the Han Dynasty, their existence in the 15th century predates that of anywhere else.^[504] K.S. Tom mentions this same repaired Ming suspension bridge described by Needham, but adds that recent research has revealed a document which lists the names of those who allegedly built an iron chain suspension bridge in Yunnan around the year 600 AD.^[505]</p>	 <p>The Luding Bridge in Sichuan, an iron-chain suspension bridge</p>
<p>Playing Cards</p>	<p>Playing cards: The first reference to the card game in world history dates no later than the 9th century, when the Collection of Miscellanea at Duyang, written by Su E (fl. 880), described the Wei clan (family of Princess Tongchang's husband) of the Tang Dynasty (618–907 AD) enjoying the "leaf game" in 868.^{[439][440][441]} The Yezi Gexi was a book on the card game which was allegedly written by a Tang woman and commented on by Chinese scholars in subsequent dynasties.^{[442][443]} In his Notes After Retirement, the Song Dynasty (960–1279) scholar Ouyang Xiu (1007–1072) asserted that playing card games existed since the mid Tang Dynasty and associated this invention with the simultaneous evolution of the common Chinese writing medium from paper rolls to sheets of paper that could be printed.^{[440][442][443]} During the Ming Dynasty (1368–1644), characters from popular novels such as the Water Margin were widely featured on the faces of playing cards.^{[442][443]} By the 11th century playing cards could be found throughout the Asian continent.^[444] Playing cards were some of the first printed materials in Europe, appearing by the 14th century (i.e. in Spain and Germany in 1377, in Italy and Belgium in 1379, and in France in 1381) and produced by European woodblock printing before the innovation of the printing press by Johannes Gutenberg (c. 1400–1468).^{[444][445]}</p>	 <p>Chinese playing card dated c. 1400 AD, Ming Dynasty</p>