7

History-Social Science Standard 7.3.5.

Teacher's Masters

California Education and the Environment Initiative

Genius Across the Centuries

California Education and the Environment Initiative

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California State Board of Education
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California Integrated Waste Management Board

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Buddhist monks bring tea seeds to Japan and plant them in 49 Buddhist temples in 749 CE. The Japanese Emperor Saga (786–842 CE) serves powdered tea in his court. He encourages the growth of tea plants and imports more seeds from China.

A book describing how tea has a positive influence on the body, especially the heart, is published in 1211 CE. The book is popular among Japan's samurai warriors. Tea drinking increases in Japan.

The Chinese export large amounts of tea along the overland Silk Road between 1300 and 1400 CE. Tea grows popular in Muslim lands and in Russia.

In 1560 CE, a Portuguese priest, Gapar de Cruz, smuggles tea bags out of China to the royal court in Lisbon. Tea becomes a very popular drink with the Portuguese nobility.

Chinese diplomats present several chests of tea to the Russian Czar Alexis in 1618. By 1796, people throughout Russia commonly drink tea.

The Dutch begin importing tea to Holland in 1602. Peter Stuyvesant brings the first shipment of tea to the Dutch settlement of New Amsterdam, in the American colonies, in 1650.

Thomas Garway, an English merchant, offers tea for sale to the English public for the first time. Calling it "*tcha,"* in an advertisement from 1657, Garway says it is able to cure "gripping of the guts, cold, dropsies, scurveys" and that "it could make the body active."

In 1708, the British East India Company is one of the most powerful companies in the world. It controls almost all tea trade between India, China, and Britain. It imports all the tea that comes into England. Records show that this was more than 240,000 pounds per year. This eventually strains the British economy.

In 1720, tea becomes more popular in America than in England, thanks to the fact that a good deal of it was being smuggled into the colonies by American merchants and sold at a lower price.

Dressed as American Indians, colonists from Boston throw hundreds of pounds of British East India tea into the harbor in 1773.

The British bring tea plants to India and build tea plantations to compete with Chinese tea growers in 1834. Later, the British do the same thing in Ceylon. Indian-grown tea becomes an important commodity in the British Empire.

China and Britain fight two wars. The first war lasts from 1839 to 1842, the second from 1857 to 1860. China loses both wars. During the Ming Dynasty, China joins the world economy and silver begins flowing in. This speeds up during the 18th century, when the British wanted tea. The British smuggle opium to China to pay for tea. The Chinese government tries to stop them, but the British fight back.

Soft-drink bottler introduces ready-to-drink, flavored iced tea in a bottle in 1987. Ten years later, the company sells over $2 billion dollars worth of bottled iced tea. This leads to other drink companies making bottled teas of their own.

World tea production reaches over 3 million tons a year, with China and India as the main producers, in 2003. Ceylon and Kenya are close behind.

Tea sales in the U.S. reach a peak of $6.2 billion, in 2006.

The oldest known woodblock print, the *Dharani sutra*, is printed in Korea between 704 and 751 CE.

Arab people open the first papermaking factory in Baghdad in 795 CE.

The art of papermaking comes to Italy by way of Arab merchants in Spain. In 1276, the first paper mill in Italy begins production.

The first paper mill in Germany opens in 1390, in the city of Nuremburg.

Koreans develop the first moveable metal type printing and produce the first book with this type, the *Jikji*, in 1377.

Johann Gutenberg invents a printing press using moveable metal type and oil-based inks. He first prints seven Bibles in 1456. His invention enables him to print smudge-proof text on paper and contributes to the Reformation.

The first paper mill in the U.S. opens in 1690, near Philadelphia. At peak operation, it produces about 1,200 reams of paper per year.

In 1714, Henry Mill develops plans for the world's first typewriter. The English inventor never makes one, though.

People begin using wood pulp rather than plant fibers to make paper. The first steam-driven, wood pulp papermaking machine is put into use in 1803.

The *Boston Morning Journal* uses wood pulp paper in its daily newspapers between 1840 and 1890. It is the only newspaper to do so in the world at this time.

The Remington Arms Company makes the first American typewriter in 1873.

Thomas Edison receives the patent, in 1876, for the first mimeograph machine, making it possible to make copies without using a printing press or retyping them.

The Waterman Pen Company sells 350,000 fountain pens in 1901. Fountain pens had been around for a long time, but the Waterman Company is the first to mass-produce them.

Laszlo Biro invents the first ballpoint pen in 1940. In 1945, the Reynolds International Pen Company begins making ballpoint pens using Biro's design. In the same year, the Bic Corporation begins making disposable ballpoint pens.

Haloid Xerox (now known as Xerox) releases the first (successful) copy machine in 1959. It can make 100,000 copies per month, weighs about 648 pounds, and is almost four feet high, wide, and deep.

In 1976, the Apple I home computer goes on sale for $666.66. Apple sells about 200 of these units total. This computer has 4K of memory and can be expanded up to 64K.

The entire paper industry, from tree cutting to final product, earns more than $850 billion in 2006. Worldwide production of wood pulp is close to 175,000 tons.

In the early 1100s, Arab traders and sailors begin using the magnetic compass.

Europeans begin building ships with three masts in the early 1300s.

European sailors begin using magnetic compasses for navigation in the 1400s.

In 1492, Christopher Columbus crosses the Atlantic Ocean.

Leeboards, used to help steer ships more effectively, begin to appear on European ships by 1570. Dutch and Portuguese traders borrow the idea after visiting China.

In the 1590s, the first armored battleships, called “Turtle Ships,” are built for Chinese Admiral Yi Shunshin.

In 1795, the chief architect and engineer of the British Navy asks the government to build six new ships with watertight compartments, just like Chinese ships have. Until this point, only Chinese ships had such compartments.

Robert Fulton launches the first commercial passenger steamship line in 1807. It connects New York City with Albany, New York. His ships use James Watt's steam engine.

Magnetic compasses make it easier for ships to cross the oceans. However, when the ships get close to shore, they can crash into rocks or not know which way to turn. In 1822, French physicist Augustin Fresnel invents a lens that focuses light into a beam that can be seen 26 miles away. Shortly after, the U.S. Lighthouse Service begins installing Fresnel lenses in American lighthouses.

British inventor William Sturgeon demonstrates the electromagnet in 1825. Electromagnets make it possible for compasses on ships to be battery-powered.

In 1862, the U.S. Navy launches the *USS Monitor*, the first American warship covered with cast iron armor.

The Suez Canal opens in 1869. It connects the Mediterranean to the Red Sea so ships no longer need to sail around Africa to get to Asia and back.

The Panama Canal opens, connecting the Atlantic and Pacific oceans, in 1914. Ships no longer have to sail around South America to move between the Atlantic and Pacific oceans.

Sir Robert Watson-Watt, a British physicist, shows that radio waves bounce off things and come back. He measures how long it takes the waves to return and demonstrates how far away things are, even if they cannot be seen. Watson-Watt's demonstration in 1935 is the beginning of what will become RADAR (radio detection and ranging). By 1940, some form of RADAR is standard on all ships.

The U.S. Air Force launches the 24th Navstar satellite into orbit in 1993. This completes a network of twenty-four satellites known as the Global Positioning System (GPS). Ships with GPS receivers can accurately identify their position on the ocean to within a few hundred feet.

Syrians begin to make Damascus steel swords in 900 CE. Legend says Damascus swords were so sharp they could cut a piece of silk as it fell to the ground, and slice through other swords and even rock.

Walloon workers begin draining the marshlands in eastern England using Chinese-style cast iron moldboard plows in 1652. They had earlier used such plows to drain the marshes surrounding Calais, France.

Jethro Tull "invents" the cast iron seed-drill in England in 1701. Chinese people had been using an iron seed-drill since 85 BCE.

The Chinese complete an iron suspension bridge over the Dadu River in Sichuan province in 1705.

The English inventor Peter Durand patents the "tin" can in 1810. Two other Englishmen, Bryan Donkin and John Hall, use Durand's idea to make the first "canned" food for the British Army in 1813. The cans are not made of tin but tin-coated steel, called "tinplate."

American inventor, William Kelly, invites Chinese steel-makers to his iron factory in Kentucky. He learns about a "new" process to make steel by forcing air into the molten iron. In 1847, he starts experimenting with this "air-boiling" process. A year later, British inventor Henry Bessemer patents the idea.

In 1858, Ezra Warner of Waterbury, Connecticut, patents the first can opener. Before this, people used hammers and chisels to open the cans.

Officials hammer a golden spike into the iron rail lines connecting the Union Pacific Railroad to the Central Pacific Railroad at Promontory Summit, Utah. This act marks completion of the first transcontinental railroad in the United States in 1869.

Henry J. Lawson patents a rear-wheel, iron chain-driven bicycle in 1879. The frame of the bicycle is made of steel tubes.

The Brooklyn Bridge is finished. It spans the East River and connects two parts of New York City, Manhattan and Brooklyn. It is the first steel wire suspension bridge in the world. In 1883, it is also the largest suspension bridge in the world.

Building of the Eiffel Tower in Paris, France, is complete in 1889. Two and a half million steel rivets hold together over 18,000 pieces of “puddled” iron. “Puddled” iron is a type of wrought iron that is very hard to break.

The United States Steel Corporation is formed. It is the first corporation in the world with a market value of over $1 billion. Businessman J.P. Morgan purchases the Carnegie Steel Company, along with several other steel companies, from Andrew Carnegie in 1901, to form U.S. Steel.

While working on a way to improve rifle barrels, Englishman Harry Brearly accidentally “discovers” stainless steel, a mixture of iron, chrome, and other alloys. He finds that it easily resists rust and stains. By 1913, stainless steel is a commercial success.

The Golden Gate Bridge opens in 1937. Crossing the San Francisco Bay, it is now the longest suspension bridge in the world. The length is made possible by improvements in steel alloys that made the cables stronger.

In 2007, world commercial crude steel production reaches a record 1.5 billion metric tons per year (1 metric ton = 1,000 kilograms, or 2,204 pounds), according to the International Iron and Steel Institute.

Ibn al-Baitar writes the first known Arabic book, *The Book of the Assembly of Medical Supplies*, in 1240 CE. In it, saltpeter is described.

Mongol armies conquer Russia, Hungary, Poland, Bulgaria, and Croatia in 1242 CE. Europeans see gunpowder weapons for the first time.

During the Seventh Crusade (1250 CE), Arab soldiers battle the French in northern Egypt. In the battle, Arab forces use catapults to launch pots full of gunpowder at the French soldiers. Some accounts say they also use rockets.

When writing a friend in 1268 CE, English scientist Sir Roger Bacon describes a child's toy "from the East" that, when lit, explodes with a loud noise. He goes on to explain that these "toys" use saltpeter, sulfur, and willow charcoal combined in a powder.

In one of the first battles of the Hundred Years War, the English army uses five cannons against the French army. Up until this battle in 1346, one of the deadliest weapons is the English longbow.

Ottoman Turks use large cannons to conquer Constantinople in 1453. These cannons are 24 feet long and fire stone cannonballs that weigh half a ton. Each of these cannons can fire the stone balls almost a mile.

King Charles I of England orders all his subjects in 1626 to save materials needed to make saltpeter. Those who do not do so are subject to harsh punishment. Groups of men known as “Petermen” roam the English countryside, looking for places to dig up and collect saltpeter for the king.

American colonists begin making their own gunpowder in Milton, Massachusetts, in 1675. The British ban the making of “powder” in the colonies and only the British soldiers are allowed to have it.

Two important inventions come about in 1846: Italian chemist Ascanio Sobrero prepares the first batch of nitroglycerine and, in Germany, chemist Christian Schonbein accidentally “discovers” nitrocellulose (later called “gun cotton”). Both explode very easily.

Alfred Nobel invents dynamite in 1867.

In 1875, Alfred Nobel invents “Gelignite,” an explosive that is much more stable than dynamite because it cannot explode without a detonator. People call it a “plastic explosive.”

Englishmen Sir James Dewar and Sir Frederick Abel invent “smokeless” gunpowder in 1889.

In 1894, the U.S. Army begins to use rifles that use smokeless gunpowder.

The Soviet Union successfully launches a rocket into space in 1957. This puts an artificial satellite into orbit around the Earth for the first time. The satellite is named “Sputnik.”

There are fewer firework shows in the U.S. in 2008 than in any other year. This is largely because of a warehouse fire in China that wiped out a big part of the world’s supply. China still makes most of the world’s fireworks. Combined with the high price of fuel to ship goods to the U.S., many cities and towns cancel their shows.

Name: _____

Part 1

Instructions: Select the best answer and circle the correct letter. (2 points each)

1. All of the resources needed to make the five Chinese inventions we have studied came from _____.

a. minerals
b. natural systems
c. plants
d. western China

2. Which is true of all of the Chinese inventions we have studied?

a. They were made by scientists working in labs.
b. They were made to solve medical problems.
c. They all happened by accident.
d. They all used resources that were available at the time.

3. Which of the following were involved in all five of the Chinese inventions we have studied?

a. artisans, farmers, and soldiers
b. natural resources, tools, and labor
c. iron, fire, and gunpowder
d. wood (trees), water, and wheels

4. The natural regions of China do not include _____.

a. grasslands
b. high mountains
c. icebergs
d. deserts

5. Getting the resources needed to make iron and steel, gunpowder, and ships caused _____.

a. the deforestation of large parts of China
b. the Song Dynasty to conquer Japan
c. the Mongol Empire to conquer China
d. the rivers of China to become polluted

Name: _____

6. Which of these was made possible by a Chinese invention from the Middle Ages?
- a. The widening and deepening of rivers and canals.
- b. The use of fireworks and rockets.
- c. The draining of swampland to use as farmland.
- d. All of the above.

7. Which of the following Chinese inventions was probably not in the house of the average person in medieval China?
- a. iron wheelbarrow or wok
- b. rifle or musket
- c. tea pot and set of cups
- d. newspaper or calendar

8. Which of the following Chinese inventions was a commodity during the Middle Ages?
- a. shipbuilding
- b. printing
- c. paper
- d. gunpowder

9. Which of the following came from an invention developed in medieval China?
- a. bottled iced-tea
- b. the Golden Gate Bridge
- c. the printing press
- d. All of the above.

10. Which is true about Chinese inventions from the Middle Ages?
- a. The ideas and products influenced people all over the world.
- b. They were invented by other people in other parts of the world at the same time.
- c. They were only used in the Chinese provinces, not outside of China.
- d. The Chinese government controlled them and kept them from spreading.

Name: _____

Part 2

Instructions: Answer each of the following questions with complete sentences or a paragraph. (5 points each)

11. Which Chinese invention do you think had the greatest influence on natural systems in medieval China?

12. Which Chinese invention do you think had the greatest influence on human social systems in medieval China?

Name: _____

Part 3

Instructions: Write a sentence telling how each of these Chinese inventions influenced world history. (2 points each)

Tea:

Paper and Printing:

The Compass:

Gunpowder:

Iron and Steel:

Name: _____

Instructions: Select one Chinese invention. It does not have to be the one you studied. Fill in the blanks below with single words, short phrases, or sentences that describe the invention. (5 points each)

Remember the following three things while completing **Inventions Game:**

- Do not make it too obvious or too easy to identify the invention you are talking about.
- Do not include the name of the invention in any of the sentences.
- Make sure that your sentences are true and correct. What you write will be read aloud.

Invention: _____

Sentences:

1. An important raw material used in this invention is _____

   and it comes from _____ .

2. To make this invention the Chinese had to (Choose one step to describe)

   _____ .

3. One major influence of this invention on natural systems was

   _____ .

4. One major influence of this invention on Chinese human social systems was

   _____ .

5. One way that this Chinese invention influenced the world was

   _____ .

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