

Chinese Navigational Tools

We rely on electronics so much in everyday life that it's hard to think about what life was like in the ancient world. Can you imagine life without TV or video games? Do your parents use a GPS device in their car?

Let's look at a similar situation so that you can imagine what life would have been like without a compass. Suppose someone drove you somewhere and dropped you off without access to buses, phones, or other people. They said that you needed to get to a certain address in two hours so that you could get money to eat something that day, but you had no way to figure out how to get there. Would you feel frustrated in this situation? This is what it would have been like for sailors before the magnetic compass was invented. They had a limited amount of food and supplies for a voyage. Therefore, they really needed to be good at traveling to their destination as quickly and accurately as possible.



Chinese navigation tools like the compass helped sailors like Zheng He make adventurous expeditions.

The Chinese are credited for many inventions, including the magnetic compass. In the fifth century, the Chinese were using lodestone, a magnetic rock, to create compasses that could be used to place furniture and buildings in the best locations based on the principles of feng shui. Feng shui is an ancient Chinese art. The main idea is to create an environment that allows for the flow of positive energy that will, in turn, bring good health and good fortune.

Lodestones point north, and this was eventually noticed by the people using them. During the Song dynasty in 1086, a book by Shen Kuo documented the use of a magnetic compass. The Chinese created magnetic compasses for navigating ships in the 800s. This is two centuries before Europeans were using them!

Chinese innovation is also demonstrated by the invention of the celestial navigation board. Navigators used 12 square wooden boards to measure the distance between the northern star and their own location. They could then record this measurement and check the measurement over several nights to chart their course.

Sailing expeditions became much easier with the use of the compass and the celestial navigation board. China went on to carry out several expeditions under Admiral Zheng He. These expeditions made it possible to trade Chinese porcelain for goods such as spices.

Chinese Printing Press

What if you could only write a paper for your class in cursive-style handwriting instead of using a computer? Would that make it really difficult and time consuming to write a 10-page paper? This is what life would have been like before printing presses were invented. In ancient China, writing anything of length, like textbooks, took a lot of time and money. The Chinese became pioneers in the process of printing books.

It is well known that the Chinese invented block printing, but they also created the process of movable type. Block printing was invented during the Sui dynasty, which ruled from 581 to 618. In this process printers carved letters into a block of wood, put ink on it, and then transferred the ink to sheets of paper. Block printing made it possible to print books—the first being books of Buddhist teachings in 868.

Movable type was invented during the Song dynasty by Bi Sheng. This process involved carving characters on small, standard size pieces of clay—much like the letter pieces on a typewriter. The clay pieces were then baked and could be swapped as they were needed. This improved process made it even faster and easier to print books. Education is and was very important in Chinese culture. The creation of movable type was an exciting development. It made it possible to create books that were more affordable. As a result of the increased availability of books, literacy also increased.

The innovations of the Chinese were important in advancing literacy, navigation, and scientific understanding. Try to think about the compass the next time that you need to get across town. Do you think these inventions were important? How do you think the world would be different if these inventions had come hundreds of years later?



Money printed by wood block during the Northern Song dynasty

After reading the passage, answer the following questions:

1. How did the Chinese invent compasses?
 - A. They noticed that their metal tools had magnetic properties.
 - B. Chinese miners encountered lodestones in the hills and discovered their magnetic properties.
 - C. They learned about it from Muslim merchants when trading with the Islamic world.
 - D. They discovered the lodestones used in Feng Shui arrangements always pointed north.

2. What two inventions enabled Chinese navigators to make advances in exploration?
 - A. sextant and compass
 - B. compass and celestial navigation board
 - C. celestial navigation board and the hand lead line
 - D. hand lead line and the triangular sail

3. Is the following statement true or false?
The Chinese invented the process of block printing.
 - A. True
 - B. False

4. The Chinese were responsible for many inventions throughout the ages. In your opinion, what was the most significant Chinese innovation? Support your answer with evidence from the text.