

Sumerian Science and Technology

ESSENTIAL QUESTION What tools did the Sumerians invent?

Sumerians were good at solving problems. They invented tools and developed special knowledge to improve their lives. They were first to invent some of the things we use daily.

Wheel Early wheels were usually made from wood with tires made of leather. ▼

Early Inventions Historians believe that Sumerians may have invented the plow (about 6000 B.C.) and the wheel (about 3500 B.C.). These inventions helped Sumerians a great deal in their daily lives.

The plow was the first important tool invented to help farmers. The first plows were often simple digging sticks with handles. They could be pulled or pushed, first by people, then by animals. Plows broke up hard soil, which made planting easier. Also, water could sink more deeply into plowed soil. As a result, the roots of plants received more water.

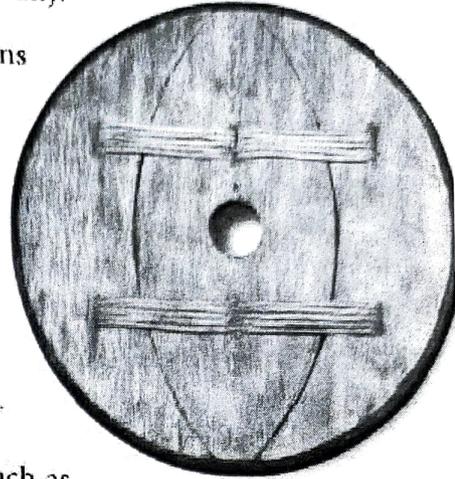
The Sumerians used the wheel in many ways, such as on wagons to transport goods. Wheeled wagons helped farmers take their crops to market more easily and quickly. However, transporting goods on the river was still more efficient.

One special kind of wheel was the potter's wheel. Before the invention of the potter's wheel, people made pottery by shaping coils of clay by hand. With the potter's wheel, Sumerians could make more pottery faster. Pots were important storage containers for surplus food.

Sumerians were among the first people to use bronze, a mixture of copper and tin. Bronze was stronger than copper so tools lasted longer and stayed sharper. Bronze tools became another item that Sumerians could trade.

Mathematics The Sumerians developed arithmetic to keep records of crops and trade goods. Their number system was based on the number 60. So today, we have 60 seconds in a minute and 60 minutes in an hour. Circles contain 360 degrees. Eventually, the measurement of time helped with the creation of calendars.

Sumerians used a triangle and a measuring rope to set land boundaries. They understood geometric shapes such as rectangles, triangles, and squares. They used those shapes to make bricks, build ramps, and dig canals.



Creation of Written Language

ESSENTIAL QUESTION How did the Sumerians invent writing?

Sumerians invented writing by 3000 **B.C.** to meet the needs of business. As trade expanded, merchants needed records of exchanges. They also wanted to label goods.

Picture Writing At first, Sumerians used clay tokens that had an image of a product, such as a cow, to keep track of goods. They sealed the tokens in clay containers to make sure that no one tampered with them. The Sumerians marked the outside of the containers so people would know what was inside them.

The marks outside the container would be a symbol of the product. Such symbols are known as **pictographs**, which means “picture writing.” In time, Sumerians stopped using tokens. They just drew the pictographs on clay tablets.

Cuneiform At first, pictographs showed actual objects. Later, they also stood for ideas. In time, the Sumerians began to use pictographs to stand for sounds too. By combining sounds, they could write more words.

The Sumerians used a sharpened reed called a **stylus** to press markings into a clay tablet. Because of its shape, the stylus made marks that were wedge shaped. Over time, the Sumerians stopped using pictures and began to use symbols made entirely of these wedge shapes. This wedge-shaped writing is called **cuneiform** (KYOO•nee•uh•FAWRM).

The writing system was very complex. The Sumerian language contained about 600 different symbols. Learning all those symbols took years. As a result, few people were able to read and write. The people who specialized in writing were called **scribes**. They were professional record keepers. Other people in Sumerian society respected them highly.

Slaves Some past societies have used slaves as a source of cheap labor. Most slaves in Sumer were taken as prisoners during war. In other cases, if Sumerian parents died or were very poor, their children might become slaves who worked in the temple. At times, a free person might borrow more money than he or she could repay. Such persons became slaves until they worked off the debt.

Slaves had some rights. They could conduct business and borrow money. Slaves could also buy their freedom.

Visual Vocabulary



pictograph