

## Student Handout 2: An Overview of the History of Technology

**As you read about each type of technology and its development, talk to the text. In the space provided, jot down questions and connections... what does this make you think about? What questions do you have? What do you wonder?**

### Teacher Model- Fire: from 500,000 years ago

An event of crucial importance in the development of technology is man's taming of fire. This probably happened 500,000 years ago in China, where the caves occupied by Peking man contain what appear to be hearths. Some experts believe there is evidence of the use of fire much earlier in southern Africa.

It would be many millennia before fire is adapted for any purpose other than for warmth and for roasting meat and root vegetables. But more than 250,000 years ago hunters realized that the sharpened point of a wooden spear can be hardened by charring it in embers.

### 1) Neolithic technology: from 8000 BC

The technological potential of fire was not discovered until well into the Neolithic period. Pottery, fired in a primitive kiln, is known from about 6500 BC. The smelting and casting of metal requires considerably higher temperatures and are not attempted until much later, from about 4000 BC. The introduction of copper, and then bronze, brought to an end the Neolithic period.

Other basic technologies, not requiring fire, are well established in Neolithic times. Textiles appear almost as early as pottery. Weights designed to help thread spinning are common in Neolithic sites, and fragments of fine woven cloth survive in graves at Catal Huyuk from as early as 5800 BC.

### 2) Spinning: from 8000 BC

The spindle developed naturally from the process of twisting fibers into a thread by hand. The spun thread must be stored, and the easiest way was to wind it onto a stick while continuing to twist more fibers into longer thread. This meant that the stick was also attached to the unfinished thread (the fibers which are still being twisted). The stick must therefore twist with the fibers.

Instead of being an encumbrance, this was turned into advantage. When the stick was given greater weight, by attaching to it a lump of clay or a stone, its momentum helped in spinning the fibers into thread.

<b>3) Weaving: from 6000 BC</b>	
<p>Until recently the earliest known scraps of cloth were woven from wool. Dating from about 5800 BC, they come from Catal Huyuk in Anatolia. Similarly, the first known example of linen is from about 5000 BC in Egypt, where flax (an indigenous wild plant in the Mediterranean region) is cultivated. But a small woven fragment discovered in 1993 near the upper reaches of the Tigris probably pushes back the available evidence. It appears to be linen and has been dated to about 7000 BC.</p> <p>Cotton was grown in both Eurasia and America. Woven cotton from about 2500 BC has been found in the Indus valley and in Peru. The most precisely localized source of any major fabric is China, where pieces of woven silk are known from about 2850 BC.</p>	
<b>4) The first miners: from 4000 BC</b>	
<p>By 4000 BC deep shafts were cut into the hillside at Rudna Glava, in the Balkans, to excavate copper ore. This robbing of the earth's treasures was carried out with due solemnity and respect. Fine pots, bearing produce from the daylight world, were placed in the mines as a form of payment and appeasement to the spirits of the dark interior of the earth.</p> <p>By about 3800 BC copper mines were also worked in the Sinai peninsula. Crucibles found at the site reveal that smelting is carried out as part of the mining process.</p>	
<b>5) Yoke and harness: from 4000 BC</b>	
<p>The harnessing of draft animals was a major technological advance in agriculture as well as transport. The first to be harnessed was the ox, conveniently provided by nature with a fleshy hump above the shoulders. A yoke laid in front of the hump this will remain in place even when a heavy burden is pulled. Sometimes a lighter yoke is attached to the horns. Oxen were dragging heavy objects or loaded sledges by about 4000 BC.</p> <p>The camel has an even more convenient hump. Its height makes it less suitable for draft purposes than the ox, but from perhaps 1000 BC it was used in Asia and north Africa for drawing wagons and for plowing. By contrast, harnessing the horse proves problematic.</p> <p>A traditional yoke can only be kept in place on a horse by passing thongs in front of its chest. However carefully they are placed, these must pass in front of the animal's windpipe. The heavier the weight the horse attempts to pull, the less air it will breathe.</p> <p>For many centuries this meant that horses were not very effectively used as draft animals. The solution, discovered in China by the 5th century AD, was to provide a firm collar, fitting round the neck and shoulders of the animal to distribute the weight. Collars of this kind reached Europe by the 9th century AD, enabling the horse to become the main draft animal of the region for both plowing and hauling.</p>	

### 6) The plow and draught animals: from 3000 BC

The plow was almost certainly the first implement for which humans use a source of power other than their own muscles. When planting seeds, it is essential to break up the ground. In the early stages of agriculture this was achieved by hacking with any pointed implement - the antler of a deer, or a hooked branch of a tree. But a useful furrow for seeds can more easily be achieved by dragging a point along the surface of the ground. The first plows consist of a sharp point of timber, sometimes hardened in a flame or tipped with flint, projecting downwards at the end of a long handle.

In the light soil of Egypt and Mesopotamia, where plowing was first undertaken, a simple pointed implement of this kind was sufficient to break up the earth and form a shallow trench. Such a plow could be dragged by a couple of men. But the use of draft animals such as oxen, from at least 3000 BC, greatly speeds up the process.

In northern Europe, with heavier soil, this type of plow was ineffective. A more elaborate machine was developed, probably by the Celts in the 1st century BC, in which a sharp blade cuts into the earth and an angled board turns it over to form a furrow.

### 7) The potter's wheel: 3000 BC

When a pot is built up from the base by hand, it is impossible for it to be perfectly round. The solution to this problem was the potter's wheel, which has been a crucial factor in the history of ceramics. It is not known when or where the potter's wheel was introduced. Indeed, it is likely that it developed very gradually, from a platform on which the potter turned the pot before shaping another side (thus avoiding having to walk around it).

By about 3000 BC a simple revolving wheel is a part of the potter's equipment in Mesopotamia, the cradle of so many innovations.

### 8) The wheel: 3000 BC

The wheel is often quoted as the single most important advance in early technology. It is sometimes said to have evolved from the potter's wheel. Both are first known at approximately the same period, around 3000 BC. But they share no geographical origin and it is unlikely that either form would suggest the other. Each is a natural solution to a very different problem.

In early technology a wagon wheel could only be made from wood. Several of the earliest known wheels have been found in the heavily forested regions of Europe.

Read more:

<http://www.historyworld.net/wrldhis/PlainTextHistories.asp?groupid=1217&HistoryID=ab11&qtrack=pthc#ixzz1ur8i06HO>