

# Science and Engineering in Ancient Egypt

By Ancient History Encyclopedia, adapted by Newsela staff on 08.15.17

Word Count **763**

Level **820L**



Ramesses' temple of Abu Simbel is massive, but also very precise. Twice a year, the sun shines directly into the temple and onto the statues of Ramesses and the god Amun. This is just one example that shows how much knowledge ancient Egyptians had of both astronomy and engineering. Photo by: IPG Gutenberg UK Ltd/Getty Images.

Thousand-year-old buildings can be found all across Egypt, in the northeast of Africa. The ancient Egyptian pyramids and temples continue to amaze people today.

There are different ideas about how they were built, but one thing is certain. The ancient Egyptians had an amazing understanding of science and technology.

The Egyptians were a society of traditions. Once they found a good way to build something, they rarely changed it. This can be seen in how they built the pyramids and other famous buildings. One good example is the obelisk, a tall and thin stone memorial with a pointed tip. The Egyptians always built their obelisks by following the same steps.

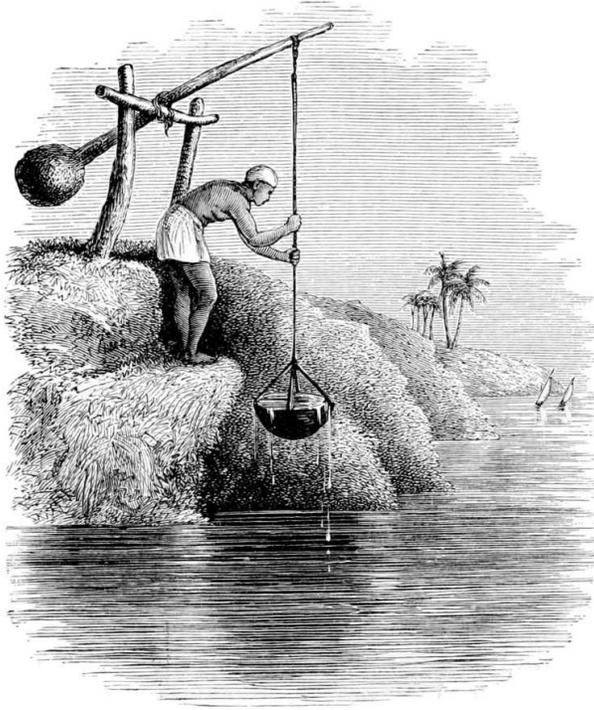
The most famous buildings in ancient Egypt are the pyramids, such as the Great Pyramid in the city of Giza. The Great Pyramid covers the same area as two football fields and is taller than a 10-story building. Experts say that more than 2 million blocks were used to make it. Some blocks weighed more than 60 tons. Lifting one of them is about the same as picking up five elephants.

## Theories on how pyramids were built

Experts have different ideas about how pyramids were built. It was hard enough to feed and organize the huge number of workers needed. But lifting the blocks would seem impossible, especially as the pyramid got bigger. Some say the workers used water pumps to lift the heavy blocks.

Egyptians did use water for their crops and animals. Ancient Egypt relied very much on farming and made new tools to help in the fields.

For example, ancient Egyptians used two kinds of plows. A heavy plow dug deep into the soil and was dragged across the field by oxen.



Then, a lighter

plow came behind and turned over the loose dirt. Once the field was plowed, workers planted seeds. Animals walked across to push the seeds into the soil. The seeds still needed water, though.

Each year, the Nile river overflowed and its waters carried nutrient-rich soil. The ancient Egyptians made small tunnels, paths and tools that carried the water from the river to the farms and fields. This allowed them to water the crops and grow food. One tool was the shaduf, a bucket used to lift water from the river.

## Using the stars as a calendar

When the ancient Egyptians made their buildings, they often looked at the stars. They lined up their pyramids and temples with what they saw in the sky.

Ancient Egyptians looked at the position of the stars. This would tell them what time of the year it was. It also told them if it was going to rain or when it was time to harvest crops. The Egyptians used the night skies for measuring weeks, months and years. Although the calendar was invented by the ancient Sumerians in the Middle East, it was used and improved by the Egyptians.



Math was used to build machines like the water pump. It was also used for taxes, which are payments that people have to give to their king or government. Without math, the ancient Egyptians would not have built the pyramids either.

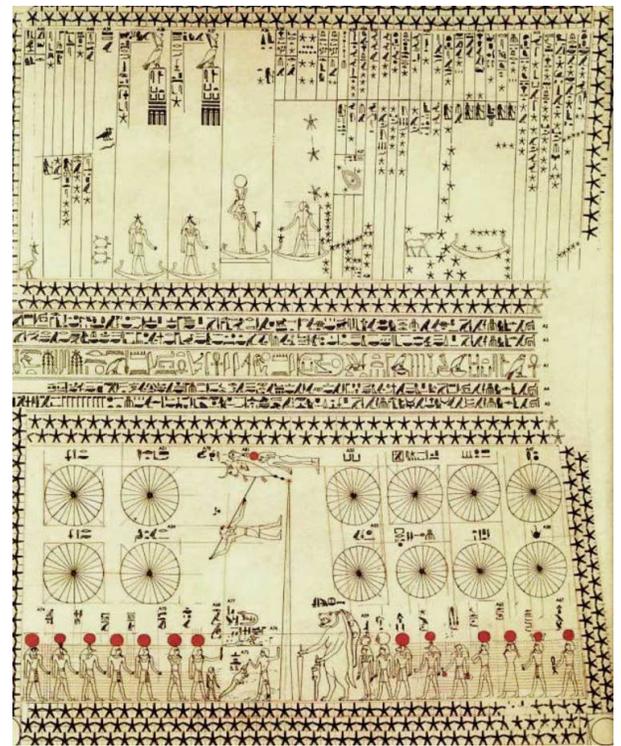
### **Magical medicine**

Math and science were also important for medicine. But in ancient Egypt, medicine was partly based on magic. There are many writings that show how the Egyptians used spells to heal the sick. At the same time, the Egyptians did know a great deal about medicine, illnesses and how to treat them.

Some medical writings show how the Egyptians handled tooth problems. The ancient Greek writer Herodotus said that doctors in Egypt all had their own specialties. For example, some were expert dentists.

Egyptian technology helped with art and literature. To write more easily, the ancient Egyptians invented ink and a type of paper called papyrus. To make better art, they used copper tools instead of tools made of stone.

The Egyptians thought that the gods gave them the world. Since art and technology made this world better, the Egyptians thought this would make the gods happy.



## Quiz

1 One MAIN idea of the article is that ancient Egyptians used their understanding of the stars to guide their decisions.

What is another MAIN idea of the article?

- (A) Some experts say water pumps were used to build the ancient Egyptian pyramids.
- (B) The ancient Egyptians invented two types of plows for farming.
- (C) A lot of the medicine that the ancient Egyptians used was connected to magic.
- (D) The ancient Egyptians used math to invent, build and help run the government.

2 Read the sentences summarizing the MAIN ideas of the article.

1. *Ancient Egyptians knew a lot about technology and science.*
2. *They were able to build massive pyramids that still stand today.*
3. *They used math to make their buildings better and invent new tools.*
4. *Their understanding of the stars helped them measure time and make decisions.*

Which answer choice would complete the summary?

- (A) Some of the blocks used to build the Great Pyramid weighed as much as five elephants.
- (B) Ancient Egyptians built all of their pyramids to line up with certain stars.
- (C) Ancient Egyptians used magic to heal, but also knew a lot about medicine.
- (D) Ancient Egyptians even had dentists who would help people with their teeth.

3 Examine the last image in the article and read the selection from the section "Using the stars as a calendar."

*Ancient Egyptians looked at the position of the stars. This would tell them what time of the year it was. It also told them if it was going to rain or when it was time to harvest crops. The Egyptians used the night skies for measuring weeks, months and years.*

How does the image support the information in the selection above?

- (A) It shows that ancient Egyptians' understanding of the stars was very detailed.
- (B) It shows what information the ancient Egyptians believed certain stars told them.
- (C) It shows why the ancient Egyptians believed that the stars controlled the weather.
- (D) It explains how ancient Egyptians used the stars to measure weeks, months and years.

4 Which selection from the article is BEST illustrated by the image at the top of the article?

- (A) The Egyptians were a society of traditions. Once they found a good way to build something, they rarely changed it.
- (B) Experts say that more than 2 million blocks were used to make it. Some blocks weighed more than 60 tons. Lifting one of them is about the same as picking up five elephants.
- (C) But lifting the blocks would seem impossible, especially as the pyramid got bigger. Some say the workers used water pumps to lift the heavy blocks.
- (D) When the ancient Egyptians made their buildings, they often looked at the stars. They lined up their pyramids and temples with what they saw in the sky.