



◀ Plato and Aristotle gather in Athens with other great philosophers and scientists.

The Legacy of Ancient Greece

31.1 Introduction

In the last chapter, you learned how Alexander the Great helped to spread Greek civilization. In this chapter, you'll explore how ancient Greek culture continues to affect our lives today.

One day long ago, a Greek thinker named Archimedes climbed into a bath, filled to the top. As water overflowed onto the floor, he realized something. The volume of his body could be measured by the amount of water that left the tub. "Eureka!" he shouted. By being curious and observing events closely, Archimedes had discovered an interesting fact about the natural world.

Curiosity and careful observation are important parts of science. This way of thinking is just one of the gifts we have received from the ancient Greeks. The Greeks left us valuable ideas in many other fields as well.

And it's not just ideas that have come from the Greeks. So do many of the words we use to describe those ideas. The world of the ancient Greeks may seem far away, but it is as close as the thoughts we think and the words we speak. Let's look at **Greek contributions** to our lives in the areas of language, government, medicine, mathematics and science, architecture, entertainment, and sports.



Use this illustration as a graphic organizer to help you discover contributions the ancient Greeks made to our modern world.



Thucydides wrote about the wars between Athens and Sparta. He is considered one of the greatest historians of the ancient world.

31.2 Greek Contributions to Modern Language and Literature

Did you know that the word *alphabet* comes from the first two letters of the Greek alphabet, alpha and beta? This is just one of many connections between modern English and ancient Greek. Our alphabet grew out of the one the Greeks used. In addition, many English words have Greek roots. For example, the word *telephone* is made up of the Greek words for “far off” (*tel*) and “voice” (*phone*).

Even the way we write sentences comes from the Greek language. English grammar, punctuation, and paragraphing are all based on Greek writing. And don’t forget literature. The Greeks invented drama, including both tragedy and comedy. They also developed historical writing. Modern historians are following in the footsteps of Greek writers like Herodotus and Thucydides. Herodotus is known as the “father of history.”

31.3 Greek Contributions to Modern Government

As you learned in an earlier chapter, our form of government was a Greek idea. Democracy, or rule by the people, began in Athens. The practice of having citizens serve on juries also began in Greece.

There are important differences between modern democracy and ancient Greek democracy. In Athens, all citizens debated and voted on every issue. Today we elect representatives to speak for us and make laws. Another difference is that only native-born men could be citizens in Athens. Today women are citizens, and people from other countries can become U.S. citizens too.

Still, the basic principles of democracy come from the ancient Greeks. Athenians were proud that their government allowed citizens to control their own destiny. This idea is the basis of democracy today.

31.4 Greek Contributions to Modern Medicine

For centuries, the Greeks believed that the gods and goddesses controlled natural events, including health and sickness. The earliest Greeks thought that illnesses and accidents were punishments sent by the gods. They didn't know about the natural causes of disease and healing.

A Greek man named Hippocrates changed the way people thought about health and medicine. Hippocrates brought a scientific way of thinking to his work as a doctor. Hippocrates believed that diseases had natural causes. He taught his students to carefully observe their patients and write down what they saw.

Hippocrates is often called the “father of modern medicine.” Today, people who become doctors take the Hippocratic Oath. They promise to be honest, to preserve life, and to keep information about their patients private.



31.5 Greek Contributions to the Modern Understanding of the Body

As you know, the Greeks loved sports. Their interest in athletics gave them some knowledge about the way people's bodies move. But their understanding of the body was limited. That was partly because they couldn't look inside to see how the body works. The early Greeks believed that cutting people open would offend the gods. As these beliefs changed over time, the Greeks made new discoveries.

Several centuries after Hippocrates, medical students were able to name and describe organs inside the body. They discovered that the heart was a pump that sent blood flowing throughout the body. And they learned that the brain was the center of the nervous system.

All doctors try to do what they think is best for their patients. This vase painting shows a doctor from ancient Greece “bleeding” a patient. Some ancient Greek doctors thought that drawing blood would aid healing.

geometry the branch of mathematics involving points, lines, planes, and figures



Hypatia was a highly respected mathematician and philosopher in Alexandria, Egypt.

31.6 Greek Contributions to Modern Mathematics

The Greeks loved reasoning. They looked for logical answers to nature's mysteries. Greek scientists often found those answers in mathematics.

One such scientist, Pythagoras, believed that numbers were the key to understanding nature. He started a school where students developed mathematical theories.

Like many Greeks, Pythagoras was especially fascinated by **geometry**. *Geometry* comes from a Greek word that means "to measure land." Geometry began as a system for measuring areas of land. The Egyptians could also measure shapes and spaces, but the Greeks created new and improved methods. Using geometry, they could figure out how much seed to buy for planting a field or how to lay out a city.

Another famous Greek mathematician was Euclid. His geometry textbook became the basis for the teaching of geometry for more than 2,000 years.

Greek culture produced the first woman to earn fame as a mathematician, Hypatia. Born in Egypt in about 370 C.E., she taught Greek philosophy and mathematics in the city of Alexandria.

31.7 Greek Contributions to Modern Astronomy

Astronomy comes from the Greek word for "star." The Greeks were pioneers in this field as well.

People in all civilizations observed the sun, moon, and stars. But a Greek scientist named Aristarchus was the first person to suggest that Earth moves around the sun. This idea upset many Greeks who believed that Earth was the center of the universe.

Another Greek, Hipparchus, is often called the greatest astronomer of the ancient world. He studied and named more than 850 stars. He also figured out how to estimate the distances from Earth to the sun and the moon. His theories allowed later scientists to accurately predict eclipses of the moon.

31.8 Greek Contributions to Modern Geography

The work of Greek astronomers also contributed to geography, the study of Earth's surfaces. *Geography* comes from Greek words meaning “writing about the Earth.” As astronomers recorded the positions of stars, mapmakers began to locate places on Earth relative to the stars. To describe where places were, they developed a system of **longitude** and **latitude**.

A great geographer of ancient times was the Greek scientist Ptolemy. He wrote a book called *Geography* that listed over 8,000 places. His book also contained maps that showed how to represent the curved Earth on a flat surface.

31.9 Greek Contributions to the Modern Understanding of Plants and Animals

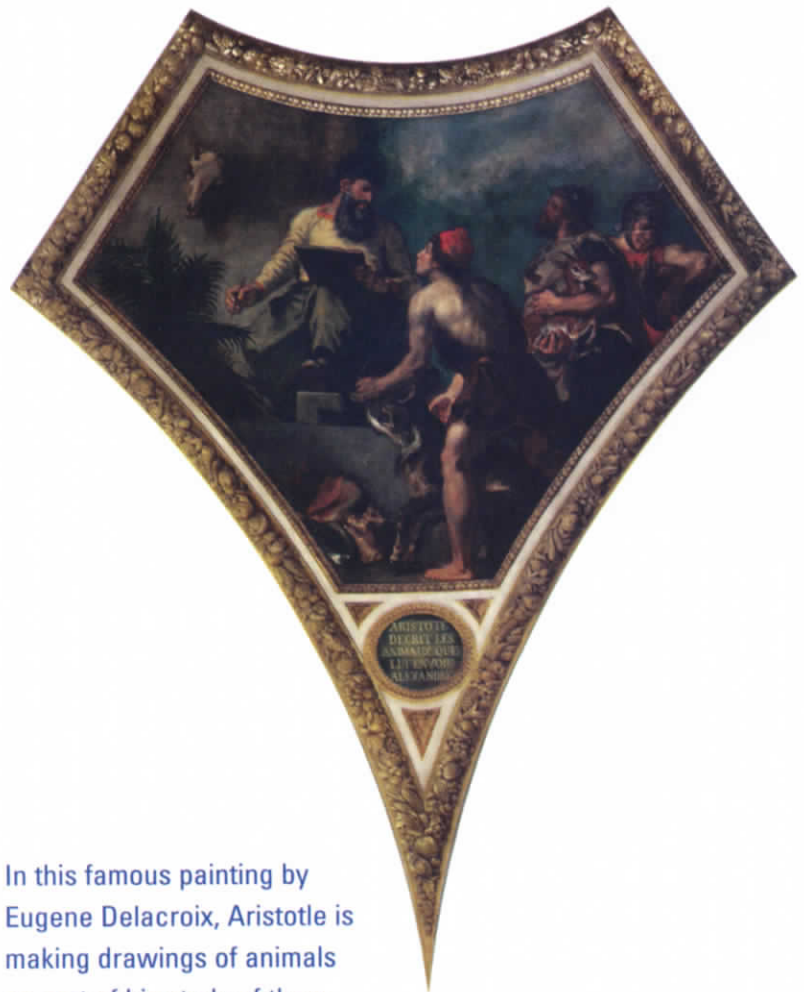
The Greeks' curiosity led them to study plants and animals. By studying the anatomy, or body structure, of animals, the Greeks also learned about the human body. This knowledge helped doctors in their medical studies.

The Greeks identified many types of plants and named their parts. They learned how plants reproduce by spreading seeds. They also discovered that some plants are useful as medicines. Greek doctors used many plants, especially herbs, to reduce pain and help people heal.

The philosopher Aristotle was fascinated by living things. He collected information about many types of animals and plants. Then he organized animals into groups such as “those with backbones” and “those without backbones.” He also divided plants into groups such as herbs, shrubs, and trees. The way we classify, or group, animals and plants today reflects Aristotle's work.

longitude a measure of how far a place on Earth is from an imaginary line that runs between the North and South Poles on the globe

latitude a measure of how far a place on Earth is from the equator



In this famous painting by Eugene Delacroix, Aristotle is making drawings of animals as part of his study of them.

31.10 Greek Contributions to Modern Architecture

The word *architecture* comes from a Greek word that means “master builder.” You read about Greek architecture in the chapter about ancient Athens. You learned how the Greeks used columns to make their temples balanced and stately. You saw examples of *pediments*, the triangular shapes where roof lines come together. And you studied the decorated bands called *friezes*.

Greek actors wore masks that showed the characters they were playing.



Greek styles are still used in many buildings today. They are especially common in public structures like government buildings, schools, churches, libraries, and museums. But you can also see Greek styles in homes and stores. For example, many houses have covered porches. These porches come from the Greek *stoa*, a covered line of columns.

31.11 Greek Contributions to the Modern Theater

When you toured Athens, you learned about Greek theater. The word *theater* comes from a Greek word that means “a viewing place.” Greek theaters were built as semicircles. The rows of seats rose steeply from the stage so that everyone in the audience could see and hear. These ideas influence the way theaters are built today.

The Greeks even invented special effects. For example, they used hoists to lift actors off the stage and make it seem as if they were flying. They also created scenery that revolved, or turned. Revolving the scenery let them quickly change where the action in a play was taking place.

But perhaps the greatest Greek contributions to the theater are their stories and plays. Writers throughout the ages have been inspired by Greek myths and stories. And Greek dramas are still performed today all over the world.

31.12 Greek Contributions to Modern Sports

Many modern sports have their roots in ancient Greece. The most famous example is the Olympic Games.

The first Olympics were held in 776 B.C.E. to honor the Greek god Zeus. Today's Olympics reflect ancient Greek customs. During the opening ceremony, an athlete lights the Olympic flame. This custom comes from the time when the first Olympic athletes lit a fire on the altar of Zeus.

Many modern Olympic events grew out of Greek contests. One example is the pentathlon. *Pentathlon* is a Greek word that means “five contests.” The Greek pentathlon included the footrace, discus throw, long jump, javelin throw, and wrestling. The Greeks invented this event as a test of all-around athletic skill. Although the five contests are different today, the pentathlon is still an Olympic event.



In ancient Greece, the opening ceremonies for the Olympic Games included the sacrifice of an animal to the gods.

31.13 Chapter Summary

In this chapter, you learned how ancient Greek civilization influences our lives today. We still use Greek words and ideas. Our form of government was invented by the Greeks. So were many ideas used in modern medicine, mathematics, and science. You can see traces of Greek culture in our buildings, theaters, and sporting events.

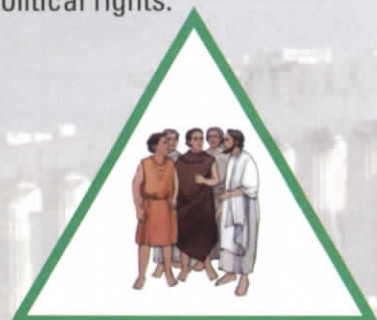
The Greeks were fiercely proud of their independence as a people. But their freedom did not last. In the next unit, you will learn about the rise of a great power, the Roman Empire. As you will see, the Romans admired and imitated Greek art and customs. They spread Greek culture across their vast empire. As a result, Greek ideas lived on long after the Greeks had lost their independence.

Ancient Greece Timeline

776 B.C.E.
First Olympic Games are held, in honor of Zeus.

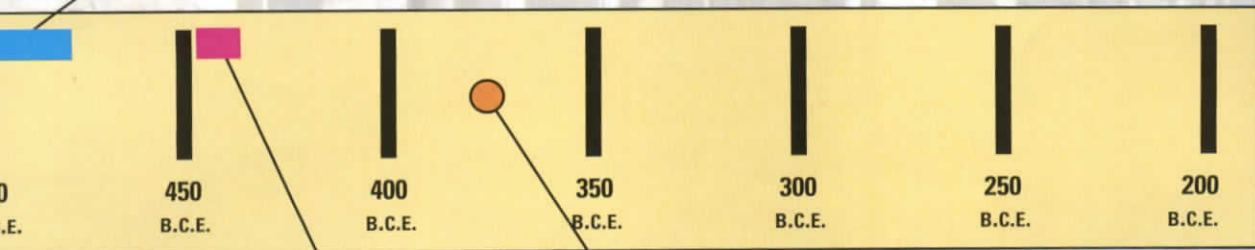


507 B.C.E.
Athenian constitution gives political rights to free men. Women and slaves are denied political rights.

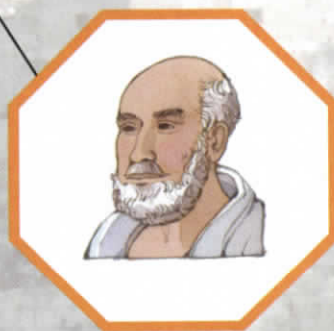


800 – 700 B.C.E.
Greeks adopt Phoenician writing.

499 – 479 B.C.E.
Persian wars are fought.



447 – 438 B.C.E.
Parthenon is built.



377 B.C.E.
Hippocrates, the father of medicine, dies.