

Greek Achievements

SECTION 4

If YOU were there...

Everyone in Athens has been talking about a philosopher and teacher named Socrates, so you decide to go and see him for yourself. You find him sitting under a tree, surrounded by his students. "Teach me about life," you say. But instead of answering, he asks you, "What is life?" You struggle to reply. He asks another question, and another. If he's such a great teacher, you wonder, shouldn't he have all the answers? Instead, all he seems to have are questions.

What do you think of Socrates?

BUILDING BACKGROUND Socrates was only one of the brilliant philosophers who lived in Athens in the 400s BC. The city was also home to some of the world's greatest artists and writers. In fact, all over Greece men and women made great advances in the arts and sciences. Their work inspired people for centuries.

The Arts

Among the most notable achievements of the ancient Greeks were those they made in the arts. These arts included sculpture, painting, architecture, and writings.

Statues and Paintings

The ancient Greeks were master artists. Their paintings and statues have been admired for hundreds of years. Examples of these works are still displayed in museums around the world.



Greek sculpture is admired for its realism, natural look, and details.

What You Will Learn...

Main Ideas

1. The Greeks made great contributions to the arts.
2. The teachings of Socrates, Plato, and Aristotle are the basis of modern philosophy.
3. In science, the Greeks made key discoveries in math, medicine, and engineering.

The Big Idea

Ancient Greeks made lasting contributions in the arts, philosophy, and science.

Key Terms and People

Socrates, p. 281
Plato, p. 281
Aristotle, p. 281
reason, p. 281
Euclid, p. 282
Hippocrates, p. 282



Use the graphic organizer online to take notes on Greek achievements in the arts, philosophy, and science.

Greek statues are so admired because the sculptors who made them tried to make them look perfect. They wanted their statues to show how beautiful people could be. To improve their art, these sculptors carefully studied the human body, especially how it looked when it was moving. Then, using what they had learned, they carved stone and marble statues. As a result, many Greek statues look as though they could come to life at any moment.

Greek painting is also admired for its realism and detail. For example, Greek artists painted detailed scenes on vases, pots, and other vessels. These vessels often show

scenes from myths or athletic competitions. Many of the scenes were created using only two colors, black and red. Sometimes artists used black glaze to paint scenes on red vases. Other artists covered whole vases with glaze and then scraped parts away to let the red background show through.

Greek Architecture

If you went to Greece today, you would see the ruins of many ancient buildings. Old columns still hold up parts of broken roofs, and ancient carvings decorate fallen walls. These remains give us an idea of the beauty of ancient Greek buildings.

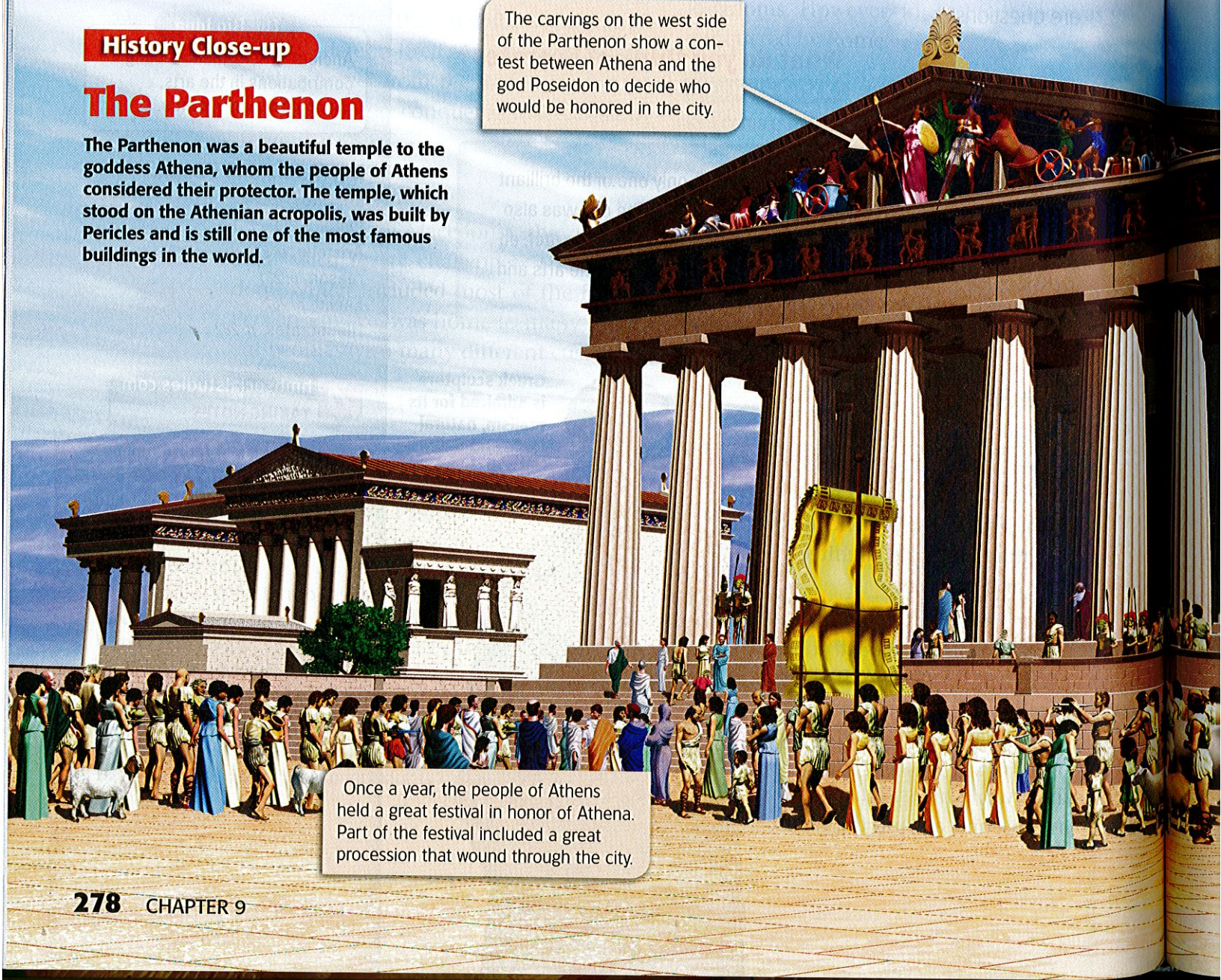
History Close-up

The Parthenon

The Parthenon was a beautiful temple to the goddess Athena, whom the people of Athens considered their protector. The temple, which stood on the Athenian acropolis, was built by Pericles and is still one of the most famous buildings in the world.

The carvings on the west side of the Parthenon show a contest between Athena and the god Poseidon to decide who would be honored in the city.

Once a year, the people of Athens held a great festival in honor of Athena. Part of the festival included a great procession that wound through the city.



The Greeks took great care in designing their buildings, especially their temples. Rows of tall columns surrounded the temples, making the temples look stately and inspiring. Greek designers were very careful when they measured these columns. They knew that columns standing in a long row often looked as though they curved in the middle. To prevent this optical illusion, they made their columns bulge slightly in the middle. As a result, Greek columns look perfectly straight.

Ancient Greek designers took such care because they wanted their buildings to reflect the greatness of their cities. The

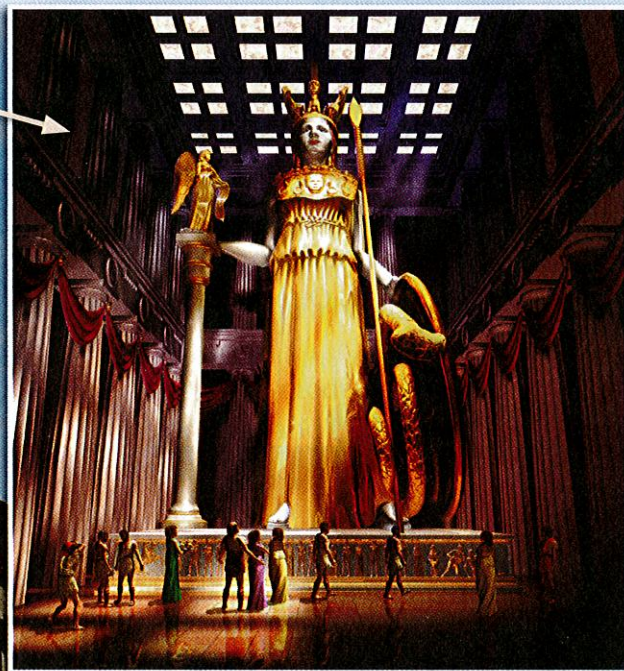
most impressive of all ancient Greek buildings was the Parthenon (PAHR-thuh-nahn) in Athens, pictured below. This temple to Athena was built in the 400s BC on the Athenian acropolis. It was designed to be magnificent not only outside, but inside as well. As you can see, the interior was decorated with carvings and columns.

New Forms of Writing

Sculpture, painting, and architecture were not the only Greek art forms. The Greeks also excelled at writing. In fact, Greek writers created many new writing forms, including drama and history.

Inside the Parthenon was a magnificent statue of Athena by the sculptor Phidias, whom many people considered the greatest sculptor in all of Greece.

The Parthenon's 46 columns are a type called Doric columns. These simple columns have no decoration at the top.



ANALYSIS SKILL ANALYZING VISUALS

Why do you think people are bringing animals and goods with them to the temple?

ACADEMIC VOCABULARY

neutral
unbiased, not favoring either side in a conflict

The Greeks created drama, or plays, as part of their religious ceremonies. Actors and singers performed scenes in honor of the gods and heroes. These plays became a popular form of entertainment, especially in Athens.

In the 400s BC Athenian writers created many of the greatest plays of the ancient world. Some writers produced tragedies, which described the hardships faced by Greek heroes. Among the best tragedy writers were Aeschylus (ES-kuh-luhs) and Sophocles (SAHF-uh-kleez). For example, Sophocles wrote about a Greek hero who mistakenly killed his own father. Other Greek dramatists focused on comedies, which made fun of people and ideas. One famous comedy writer was Aristophanes (ar-uh-STAHF-uh-neeze). He used his comedy to make serious points about war, courts of law, and famous people.

The Greeks were also among the first people to write about history. They were interested in the lessons history could teach. One of the greatest of the Greek

historians was Thucydides (thoo-SID-uh-deez). His history of the Peloponnesian War was based in part on his experiences as an Athenian soldier. Even though he was from Athens, Thucydides tried to be **neutral** in his writing. He studied the war and tried to figure out what had caused it. He may have hoped the Greeks could learn from their mistakes and avoid similar wars in the future. Many later historians modeled their works after his.

READING CHECK Summarizing What were some forms of art found in ancient Greece?

Philosophy

The ancient Greeks worshipped gods and goddesses whose actions explained many of the mysteries of the world. But by around 500 BC a few people had begun to think about other explanations. We call these people philosophers. They believed in the power of the human mind to think, explain, and understand life.

Primary Source

BOOK

The Death of Socrates

In 399 BC Socrates was arrested and charged with corrupting the young people of Athens and ignoring religious traditions. He was sentenced to die by drinking poison. Socrates spent his last hours surrounded by his students. One of them, Plato, later described the event in detail.

Socrates himself does not protest against his sentence but willingly drinks the poison.

The students and friends who have visited Socrates, including the narrator, are much less calm than he is.

“Then raising the cup to his lips, quite readily and cheerfully he drank off the poison. And hitherto most of us had been able to control our sorrow; but now when we saw him drinking . . . my own tears were flowing fast; so that I covered my face and wept . . . Socrates alone retained his calmness: What is this strange outcry? he said . . . I have been told that a man should die in peace. Be quiet then, and have patience.”

—Plato, from *Phaedo*

ANALYSIS SKILL

ANALYZING PRIMARY SOURCES

How does Socrates tell his students to act when they see him drink the poison?

Socrates

Among the greatest of these thinkers was a man named **Socrates** (SAHK-ruh-teez). He believed that people must never stop looking for knowledge.

Socrates was a teacher as well as a thinker. Today we call his type of teaching the Socratic method. Socrates taught by asking questions. His questions were about human qualities such as love and courage. He would ask, "What is courage?" When people answered, he challenged their answers with more questions.

Socrates wanted to make people think and question their own beliefs. But he made people angry, even frightened. They accused him of questioning the authority of the gods. For these reasons, he was arrested and condemned to death. His friends and students watched him calmly accept his death. He took the poison he was given, drank it, and died.

Plato

Plato (PLAYT-oh) was a student of Socrates. Like Socrates, he was a teacher as well as a philosopher. Plato created a school, the Academy, to which students, philosophers, and scientists could come to discuss ideas.

Although Plato spent much of his time running the Academy, he also wrote many works. The most famous of these works was called *The Republic*. It describes Plato's idea of an ideal society. This society would be based on justice and fairness to everyone. To ensure this fairness, Plato argued, society should be run by philosophers. He thought that only they could understand what was best for everyone.

Aristotle

Perhaps the greatest Greek thinker was **Aristotle** (ar-uh-STAH-tuhl), Plato's student. He taught that people should live lives of moderation, or balance. For example,

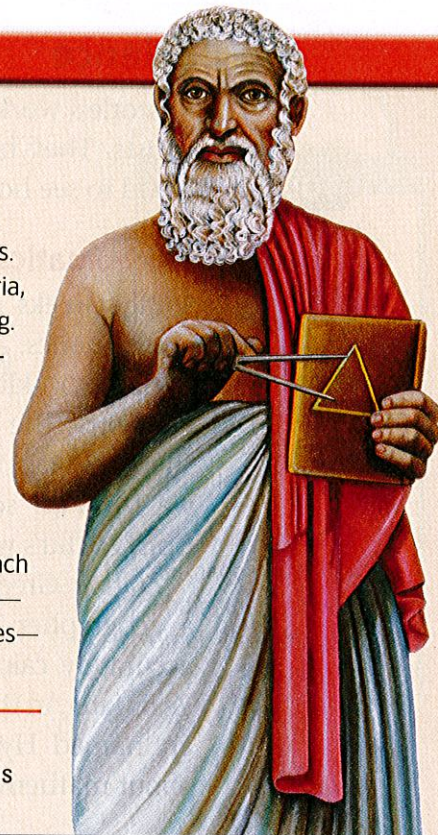
BIOGRAPHY

Euclid

c. 300 BC

Euclid is considered one of the world's greatest mathematicians. He lived and taught in Alexandria, Egypt, a great center of learning. Euclid wrote about the relationship between mathematics and other fields, including astronomy and music. But it is for geometry that he is best known. In fact, his works were so influential that the branch of geometry we study in school—the study of flat shapes and lines—is called Euclidean geometry.

Drawing Conclusions Why do you think a branch of geometry is named after Euclid?



people should not be greedy, but neither should they give away everything they own. Instead, people should find a balance between these two extremes.

Aristotle believed that moderation was based on **reason, or clear and ordered thinking**. He thought that people should use reason to govern their lives. In other words, people should think about their actions and how they will affect others.

Aristotle also made great advances in the field of logic, the process of making inferences. He argued that you could use facts you knew to figure out new facts. For example, if you know that Socrates lives in Athens and that Athens is in Greece, you can conclude that Socrates lives in Greece. Aristotle's ideas about logic helped inspire many later Greek scientists.

READING CHECK **Generalizing** What did ancient Greek philosophers like Socrates, Plato, and Aristotle want to find out?

Science

Aristotle's works inspired many Greek scientists. They began to look closely at the world to see how it worked.

THE IMPACT TODAY

Many doctors recite the Hippocratic Oath, a pledge to behave ethically, when they finish medical school.

Mathematics

Some Greeks spent their lives studying mathematics. One of these people was **Euclid** (YOO-kluhd). He was interested in geometry, the study of lines, angles, and shapes. In fact, many of the geometry rules we learn in school today come straight from Euclid's writings.

Other Greek mathematicians included a geographer who used mathematics to accurately calculate the size of the earth. Years later, in the AD 300s and 400s, a woman named Hypatia (hy-PAY-shuh) taught about mathematics and astronomy.

Medicine and Engineering

Not all Greek scientists studied numbers. Some studied other areas of science, such as medicine and engineering.

Greek doctors studied the human body to understand how it worked. In trying to cure diseases and keep people healthy, Greek doctors made many discoveries.

The greatest Greek doctor was **Hippocrates** (hip-AHK-ruh-teez). He wanted to figure out what caused diseases so he could better treat them. Hippocrates is better known today, though, for his ideas about how doctors should behave.

Greek engineers also made great discoveries. Some devices they invented are still used today. For example, farmers in many countries still use water screws to bring water to their fields. This device, which brings water from a lower level to a higher one, was invented by a Greek scientist named Archimedes (ahr-kuh-MEED-eez) in the 200s BC. Greek inventors could be playful as well as serious. For example, one inventor created mechanical toys like birds, puppets, and coin-operated machines.

READING CHECK Summarizing What advances did Greek scientists make in medicine?

SUMMARY AND PREVIEW Through their art, philosophy, and science, the Greeks have greatly influenced Western civilization. In the next chapter, you will learn about another group that has helped shape the Western world—the Romans.

Section 4 Assessment

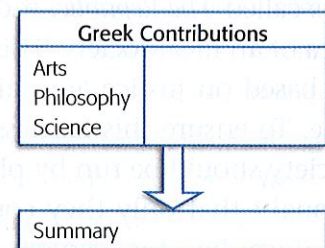
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ONLINE QUIZ

Reviewing Ideas, Terms, and People

- a. Identify** What two types of drama did the Greeks invent?
b. Explain Why did Greek columns bulge in the middle?
c. Elaborate How did studying the human body help Greek artists make their statues look real?
- Describe** How did **Socrates** teach? What is this method of teaching called?
- a. Identify** In what fields did **Hippocrates** and **Euclid** make their greatest achievements?
b. Make Inferences Why do some people call Greece the birthplace of the Western world?

Critical Thinking

- Summarizing** Add a box to the bottom of your note-taking chart. Use it to summarize Greek contributions in the arts, philosophy, and science.



FOCUS ON WRITING

- Taking Notes about Artists and Thinkers** Add the artists and thinkers from this section to your chart. Because these people were not military leaders, all of your notes will go in the third column of your chart.