

## MAIN IDEAS

- 1 **Culture** Greek art and architecture introduced new styles and concepts that set standards for generations of artists around the world.
- 2 **Culture** The Greek love of reason and logic influenced the development of Western knowledge.
- 3 **Science and Technology** Hellenistic science provided much of the scientific knowledge of the world until the modern age.

## TAKING NOTES

## Reading Skill: Finding Main Ideas

Looking for the main ideas as you read can help you understand the value of a period in history. As you read this lesson, look for the cultural and scientific contributions made by people of the Greek and Hellenistic cultures. Record these contributions on a list for each of the three headings in Lesson 4.

The Arts & Architecture	History & Philosophy	Science & Technology



Skillbuilder Handbook, page R2



▲ **Hellenistic Sculpture** This sculpture is titled *Winged Victory of Samothrace*. The sculpture features Nike, the goddess of victory.

## Words to Know

Understanding the following words will help you read this lesson:

**sponsor** to support another person or thing (page 411)

*The city leader found the money to **sponsor** a play festival.*

**troupe** a group, especially of actors, singers, or dancers (page 411)

*The acting **troupe** spent months trying to memorize their lines from the play.*

**proportion** a pleasing balance of various parts of a whole (page 413)

*Greek buildings are famous for their graceful **proportions**.*

**compound** consisting of or using more than one (page 416)

*Archimedes used **compound** pulleys to move extremely heavy objects easily.*



# The Legacy of Greece

## TERMS & NAMES

drama  
tragedy  
comedy  
ideal  
philosophy

**Build on What You Know** You have learned about the great art, literature, and thought of Chinese and Indian civilizations. Greek civilization spread through the actions of Alexander the Great. Later, the Hellenistic culture spread to Mediterranean countries and into Asia.

## The Arts and Architecture

- 1 ESSENTIAL QUESTION** What new elements did Greek art and architecture introduce?

The Greeks invented drama as an art form. **Drama** was a written work designed for actors to perform. The Greeks built the first theaters in the western world.

**Drama** Greek drama was a part of every city's religious festival. Wealthy citizens spent money to sponsor the production of the dramas. Writers submitted plays to the city leader, who chose the ones he thought were the best. Then a play was assigned to a troupe of actors for production. When the plays were performed, contests were held to award prizes to the best writers.

Ancient Theater  
The theater at  
Epidauros is built  
into a hillside. ▼





**Actors** The actors in plays were men, who also played the parts of women. The actors wore colorful costumes and masks to portray their characters. The stage sets were colorful as well. Dancing was important in Greek festivals and plays. Often the plays included a large chorus that danced, sang, and recited poetry. Drama had two forms: tragedy and comedy.

**Tragedy and Comedy** The first form, **tragedy**, was a serious drama that presented the downfall of an important character, such as a king. Common themes for tragedy included love, war, and hate. One example is the hero in the play *Oedipus Rex* (EHD•uh•puhs rehks) by Sophocles (SAHF•uh•KLEEZ). In the play, a good, intelligent ruler named Oedipus kills a man. Later, Oedipus finds out that the man he killed was really his own father.

The second form of drama, called **comedy**, was a less serious dramatic work. Comedies often made fun of politics, important people, and ideas of the time. Comedies usually ended happily. Aristophanes (AR•ih•STAHF•uh•nee), who was born in the time of Pericles, was a great writer of comedy. One of his plays, *The Birds*, makes fun of those who would gain power. In the play, a king becomes a bird and founds a city in the sky. The city is called Cloudcuckooland. The hero blocks the gods from interfering with his rule and declares himself the king of the universe.

**Sculpture** Greek artists aimed to capture the **ideal** in their work. In other words, they tried to portray objects, including humans, in as perfect a form as possible. The artists tried to create a sense of order, beauty, and harmony in every work. Since the Greeks spent much of their time out-of-doors, works of art were located outside and were of a large scale. Many Greek sculptures portrayed the gods. The sculptures were placed in temples. These temples were built to honor the gods.

One of the most famous statues was created to honor the goddess Athena. In 447 B.C., Pericles appointed the sculptor Phidias (FIHD•ee•uhs) to direct the building of the Parthenon as a house for Athena. Phidias created a statue of Athena that was placed inside. He used gold and ivory to make the statue. It stood more than 30 feet tall when it was finished.



▲ Dramatic Masks  
The mask at the top represented comedy. The lower mask was used in tragedy.

**Architecture** Greek architects designed temples, theaters, meeting places, and wealthy citizens' homes. Like the sculptors, the architects worked to create beautiful buildings with graceful proportions. Several distinct elements appeared in architectural works. One element was a column.

Often a series of columns, called a colonnade, was placed around the outside of a building. The space between the top of a column and the roof is called a *pediment*. Sculptures or paintings usually were placed in the pediments. The Parthenon displayed the temple form that was most often used (see page 396). It had a four-sided colonnade around a room built to house the statue of the goddess Athena. Sculptured designs that portrayed scenes in Athena's life were put in the pediments of the Parthenon.

#### Visual Vocabulary



pediment

**REVIEW** What was the goal of Greek artists?

### Greek Columns

#### Ionic

This style has a thin column with a scroll-like design for its top.



#### Doric

This simple style has a plain top. It was used throughout Greece and its colonies.



#### Corinthian

The Greeks did not use this style much. The Romans copied it in the design of their temples.





## History, Philosophy, and Democracy

**2 ESSENTIAL QUESTION** How did the Greek love of reason and logic influence the development of Western thought?

Perhaps the greatest legacy the Greeks left for the world was the idea of democracy and ways to run a government.

**Democracy Becomes Reality** The citizens of some Greek city-states practiced direct democracy. Unfortunately, citizenship was limited to a few people. But, for the first time, citizens had a voice in their government. The government was more open and more fair than any government had been. The Greeks' ideas have been copied in many places over time. Democracy continues to be a goal for many nations where it does not yet exist.

**Herodotus and Thucydides** The Greeks were among the first civilizations to write down their history. They did not just tell stories about their past. They examined the past to try to determine the facts and significance of a historical event.

Herodotus (hih•RAHD•uh•tuhs) has been called the Father of History. He was interested in learning and recording the stories about events. Herodotus was born in 484 B.C. and traveled widely as a young man. He wrote an account of the Persian Wars called *History*.

Another Greek historian, Thucydides (thoo•SIHD•ih•DEEZ), wrote a history of the Peloponnesian War. To make sure he was accurate, he used documents and eyewitness accounts to create his work. This approach set a standard for the writing of history.

**The Search for Truth** After the Peloponnesian War, Greek thinkers began to question their values. In this questioning they were like the Chinese thinkers before and during the Time of the Warring States. In the search to find answers, the Greeks developed **philosophy**, or the study of basic truths and ideas about the universe.

**Greek Philosophers**  
The three most famous Greek philosophers are Plato, Socrates, and Aristotle. ▼



Plato



Socrates

Greek philosophers had two basic ideas about the universe. First, they assumed that the universe is put together in an orderly way. They believed that laws of nature control the universe. Second, the philosophers assumed that people could understand these laws. The philosophers used these two ideas when they sought the truth.

**Socrates** Over a period of time, Greece had many famous philosophers. One of them was Socrates (SAHK•ruh•TEEZ), who lived from 470 to 399 B.C. He encouraged his young students to examine their beliefs by asking them a series of questions. This question-and-answer style of teaching is called the Socratic method.

Young people liked the teaching of Socrates. But his enemies accused him of causing young people to rebel. They brought him to trial. Socrates told the court that he was teaching young people to think about their values and actions. The jury did not agree with his actions and sentenced him to death. Socrates died by drinking a poison called hemlock.

**Plato and Aristotle** One of Socrates' best students was Plato. He was born about 427 B.C. Plato wrote about an ideal government in a book titled *The Republic*. He did not describe a democracy. Instead, he believed that a philosopher-king should rule. This king would be wise, calm, and reasonable—like a philosopher. Plato started an important school of higher learning called the Academy. It stayed open for about 900 years.

Aristotle (AR•ih•STAHT•uhl) was Plato's brightest student. Aristotle lived from 384 to 322 B.C. He invented a method of debating that followed rules of logic. Later, the rules of logic were applied to studies in science. Aristotle opened his own school in Athens called the Lyceum. In addition to his great philosophical work, Aristotle also spent three years tutoring Alexander the Great.

**REVIEW** How did Herodotus and Thucydides influence the writing of history today?



▲ **Death of Socrates**  
Socrates' supporters gather with him as he drinks poison.



Aristotle



## Science and Technology

### 3 ESSENTIAL QUESTION Why is Hellenistic science so important?

Hellenistic scholars preserved and expanded the scientific and mathematical knowledge of the thinkers of Greece, Egypt, and India.

**Astronomy** Some important discoveries about the planets and the stars came from scientists studying at Alexandria. For instance, Eratosthenes (EHR•uh•TAHS•thuh•NEEZ) found a way to estimate the circumference, or distance around Earth.

Another scientist at Alexandria, Aristarchus (AR•ih•STAHR•kus), studied the relationship of the sun, moon, and Earth to each other. He also estimated the size of the sun. The scientist Ptolemy (TAHL•uh•mee) studied the universe. Unfortunately for the world of science, Ptolemy placed Earth at the center of the universe. This incorrect view persisted for 1,400 years!

**Mathematics and Physics** Knowledge of very complicated mathematics is needed to do work in astronomy. Hellenistic mathematicians developed several kinds of math. The mathematician Euclid (YOO•klihd) created a geometry text complete with proofs for his work. The work of Euclid is still the basis for geometry.

Archimedes (AHR•kuh•MEE•deez) explained the law of the lever. As an inventor, he developed the compound pulley. He is also believed to have created a device to lift water. He intended his water-lifting device to be used for the irrigation of fields.

### Greek Astronomy

#### Earth

Eratosthenes' estimate of the Earth's circumference was between 28,000 and 29,000 miles.



The actual circumference of Earth is 24,901.5 miles.

#### Sun

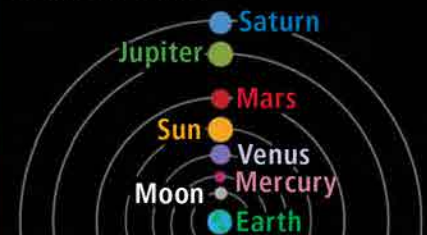
Aristarchus' estimate of the sun's size was 300 times the size of Earth.



The sun is actually 1.3 million times the size of Earth.

#### The Universe

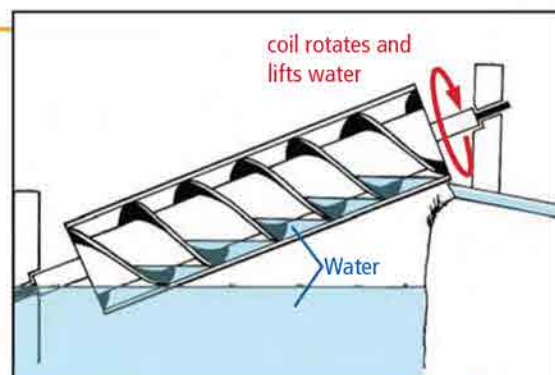
Ptolemy's view of the universe placed Earth in the center.



The sun is the center of a solar system, which is part of the universe.

The ideas of Archimedes were used to build pumps and eventually to create a steam engine.

The first noted female mathematician, Hypatia (hy•PAY•shuh), taught at Alexandria. Hypatia was also an astronomer. She wrote about the works of Ptolemy and about Euclid and geometry as well. She was also the leader of a philosophical movement based on the works of Plato.



▲ **Archimedes' Water-Lifting Device**  
The device is a large coil open at both ends. It is placed inside a water tight tube. As the coil turns it brings up water from a lower level.

**REVIEW** In what areas of math and science did Greek thinkers work?

### Lesson Summary

- Greek and Hellenistic writers, artists, and architects invented new and beautiful styles.
- Greek philosophy and history set standards of logic, reason, and record keeping.
- Hellenistic scientists made important discoveries about the world.

### Why It Matters Now . . .

The Greek and Hellenistic cultures set enduring standards in art, philosophy, and science.

## 4 Lesson Review

### Terms & Names

1. Explain the importance of
- |         |        |            |
|---------|--------|------------|
| drama   | comedy | philosophy |
| tragedy | ideal  |            |

### Using Your Notes

**Finding Main Ideas** Use your completed graphic to answer the following question:

2. What two ideas about the universe did Greek philosophers accept?

The Arts & Architecture	History & Philosophy	Science & Technology



**Homework Helper**  
ClassZone.com

### Main Ideas

3. What qualities did Greek architects strive for in their work?
4. What teaching style is identified with Socrates, and what was it like?
5. What important discoveries about Earth, the planets, and the sun came from the scientists of Alexandria?

### Critical Thinking

6. **Determining Historical Context** What was wrong with Ptolemy's theory?
7. **Explaining Historical Patterns** Why did both Chinese and Greek thinkers develop ideas about philosophy during times of war and disorder?

### Activity

**Internet Activity** Use the Internet to research inventions of ancient Greeks. Design a Web page that illustrates and explains those inventions.

**INTERNET KEYWORD:** *Greek inventions*



## Greek Influences Today

**Purpose:** To explore places where Greek influence can be found in today's world

The Greeks have influenced our ideas in many different areas. They strived to achieve the ideal in all areas of life. They paid especially close attention to those aspects of life that were a part of the polis. Today, we can clearly see the Greek influence in sports, architecture, and jury selection.

### Olympics

► **Past** The Olympics were held in Olympia every four years. Only men could compete. Sports included boxing, wrestling, running, jumping, javelin and discus throwing, and events using horses. The image at the right shows an athlete arriving at the Olympics.

▼ **Present** The modern Olympics are held every four years. There are so many events that the games were split into the Summer Games and the Winter Games. Cathy Freeman (center), gold medal winner in the 400 meter dash in 2000, represented Australia.





## Architecture

▼ **Past** Greek architects looked to nature to find the ideal form for building. They found a ratio in nature that they believed created perfect proportions. They used it in their buildings and especially with their columns. The result was a graceful structure like the Temple of Hephaestus.



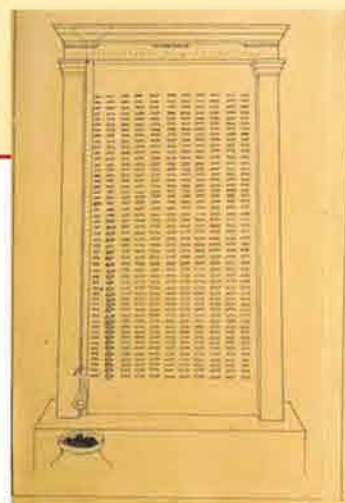
▼ **Present** Many buildings copy the Greek style. The columns lend a sense of importance and authority to the building. The building below is the Lincoln Memorial in Washington, D.C.



## Jury Selection

► **Past** Athens had a pool of about 6,000 qualified jurors. Trials required as many as 500 jurors. Jurors were paid. At right is a jury selection device from ancient Greece. Each juror had a metal plate with his name on it. The plates were randomly placed in the slots. Then rows of the plates were selected for a specific trial.

▼ **Present** The adult population of citizens of a district make up the jury pool. Jurors are randomly called to serve and are paid a small amount. Juries are made up of 12 persons, although there can be as few as 6. Potential jurors are sent a legal order to serve. The order must be obeyed.



## Activities

1. **TALK ABOUT IT** Why do you think jurors are paid?
2. **WRITE ABOUT IT** Use the library or the Internet to research the development of the modern Olympic games. Write a research report describing your findings.



# Chapter 12 Review

## VISUAL SUMMARY

### Classical Greece

#### Culture

- Developed the basis of western philosophy
- Established rules for the writing of history
- Set out rules of logic



#### Arts

- Created drama
- Used the ideal as the basis for the arts
- Set artistic standards for art and architecture



#### Science & Technology

- Made important discoveries about Earth and the planets
- Devised new mathematics
- Developed inventions such as compound pulley and water lifting devices



#### Government

- Created and used direct democracy
- Expanded citizen participation in government
- Alexander built an enormous empire including land in Asia, Africa, and Europe



## TERMS & NAMES

Explain why the words in each set below are linked with each other.

1. **Pericles** and **direct democracy**
2. **Delian League** and **Peloponnesian War**
3. **Alexander the Great** and **Hellenistic**
4. **tragedy** and **comedy**

## MAIN IDEAS

**The Golden Age of Greece** (pages 392–397)

5. How did the three goals of Pericles bring a Golden Age to Greece?
6. What aspects of Athenian direct democracy are similar to democracy as practiced by the United States?

**Peloponnesian War** (pages 398–403)

7. Why did other city-states in the Delian League resent Athens?
8. How did Athens and Sparta shape their war strategies?

**Alexander the Great** (pages 404–409)

9. How did the Peloponnesian War help Philip II of Macedonia conquer Greece?
10. How did Alexander the Great introduce Greek ideas to Egypt and Central Asia?

**The Legacy of Greece** (pages 410–419)

11. What qualities did Greek sculptors and architects seek to portray?
12. What are the basic ideas in Greek philosophy?

## CRITICAL THINKING Big Ideas: Geography

13. **UNDERSTANDING CAUSE AND EFFECT** Why didn't the democratic ideas of Greek city-states spread throughout the empire of Alexander the Great?
14. **MAKING INFERENCES** How did the conquests of Alexander the Great change the cultures of the conquered lands?
15. **UNDERSTANDING CONTINUITY AND CHANGE** How did the Greek scientists expand knowledge about the world?

## ALTERNATIVE ASSESSMENT

**1. WRITING ACTIVITY** Review the section about Socrates in Lesson 4. Use books or the Internet to learn more about Socrates' trial. Working with a partner, write a short scene for a play about the trial of Socrates. Be sure to include parts for Socrates, his students, and his enemies.

**2. INTERDISCIPLINARY ACTIVITY—SCIENCE** Use books or the Internet to research the ideas of Archimedes about levers. Duplicate some of Archimedes' experiments. Prepare a lab report on your activities.

### 3. STARTING WITH A STORY



Review your letter of advice to Pericles about paid public officials. Use the Internet to find what paid public positions exist in your hometown or state. Also find out what qualifications are required for those positions and how the positions are filled. Prepare a report with your findings.

### Technology Activity

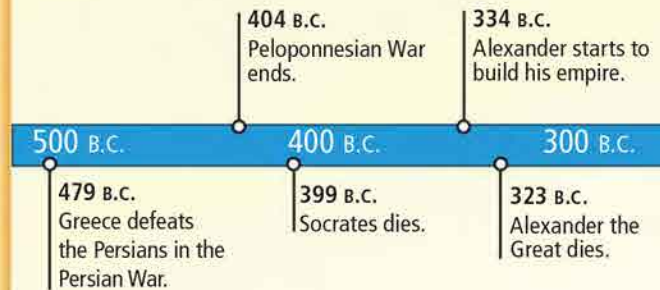
**4. CREATING A VIDEO SCRIPT** Use the Internet or the library to research modern buildings that show the influence of Greek architecture. Create a video script for a presentation on the influence of Greek architecture on modern buildings.

Include

- the location of the modern buildings
- images of the modern and Greek buildings
- comparisons of modern buildings and Greek buildings



**Using a Time Line** The time line below shows changes in Greece from 479 B.C. to 323 B.C. Use it to answer the questions below.



**1. Which of the events listed above occurred first?**

- A. death of Socrates
- B. death of Alexander
- C. Peloponnesian War
- D. Persian War

**2. Which of the following statements is correct?**

- A. Socrates and Alexander lived at the same time.
- B. The Peloponnesian War ended before Alexander built an empire
- C. The Persian War occurred after the Peloponnesian War.
- D. It took Alexander 10 years to build his empire.



Additional Test Practice, pp. 51–533



## Persuasive Writing: Honoring an Ancient Leader

**Purpose:** To persuade a historical society to honor the leader of your choice with a statue

**Audience:** Members of the historical society

You read on page 394 that Pericles convinced people who saw him lose a wrestling match that he had really won. How did he do that? He used persuasion. Writing intended to convince another person to adopt your opinion or position is called **persuasive writing**.

Pericles ►



### Organization & Focus

A historical society has raised money to erect a statue. Its goal is to honor the ancient Hebrew or ancient Greek who had the most-lasting influence on history. Your assignment is to write a 500- to 700-word letter to persuade the society to honor the leader of your choice.

**Choosing a Topic** Skim Chapters 10, 11, and 12. In your notebook, write the name of each leader you find. Take notes about his or her accomplishments and lasting influence. Even if you find a leader you want to recommend, keep reviewing the chapters. To write a good persuasive letter, you will need to show why your leader is a better choice than other leaders. So you will need details about them too. When you've finished, review your notes and make your choice.

**Identifying Purpose and Audience** Your purpose is to use facts, examples, and reasons to convince others to adopt your opinion. Your audience is the members of a historical society. Because they are familiar with history, you won't have to provide much background information. You can focus on giving solid and convincing reasons.

**Finding Supporting Evidence** Gather facts, examples, and reasons to prove that your leader is the best choice. Also, anticipate the leaders others might suggest, and gather evidence against those choices.

**Outlining and Drafting** Make an outline of the three main parts of your persuasive letter. The **introduction** should grab the readers' interest and state your recommendation. The **body** of your letter should offer facts and examples as supporting evidence for your recommendation. The body of your letter should also show why other recommendations—counterarguments—are not as good as yours. The **conclusion** should tie everything together and make a strong appeal.



## Research & Technology

Give your readers a strong sense of your leader's personality. One way to do this is to describe actions that demonstrate the leader's best characteristics. You can find additional information about the life of your leader in the library or online. Record helpful information on a chart like the one below.

Characteristics	Actions that Demonstrate Them



**Technology Tip** Not all information on the Internet is accurate. Learn to evaluate online sources. For example, museums and encyclopedias are reliable. If you have questions about a source, ask your teacher or librarian.



## Evaluation & Revision

Exchange first drafts with a classmate. Use the following guide to evaluate your partner's letter:

- Is the thesis statement clear?
- How strong are the main arguments and evidence?
- Were counterarguments addressed well?
- Were you convinced by the letter? Why or why not?

Listen carefully to your partner's comments. Rework your letter until you are satisfied that you have addressed your partner's major concerns.



### Self-Check

Does my letter have

- ☐ an awareness of my audience and purpose?
- ☐ an introduction that states my recommendation?
- ☐ well-organized and convincing evidence?
- ☐ a strong conclusion with a final appeal?



## Publish & Present

Make a neat final copy of your letter. Make a sketch to go along with it to show what the statue might look like. Post your letter and drawing on the bulletin board and read what others have posted there.