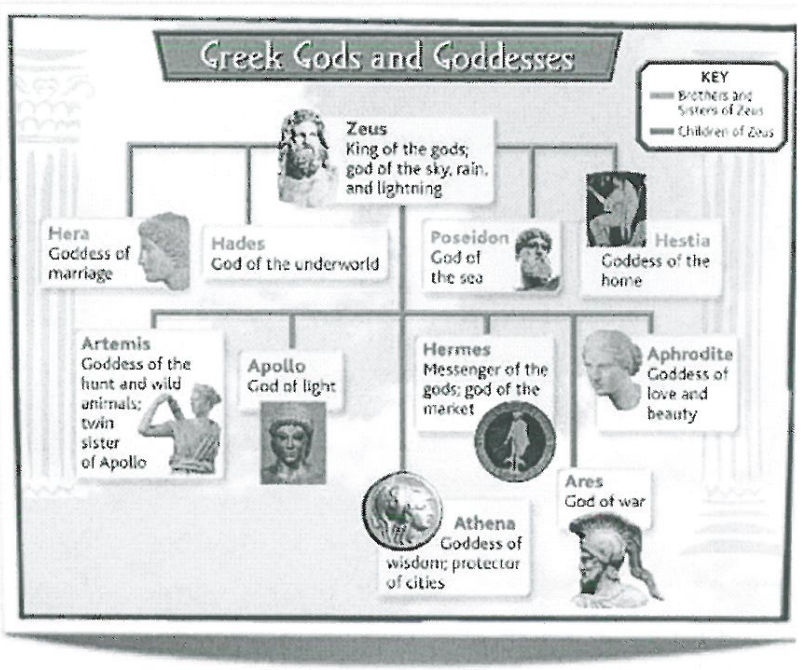
Station 1: The Gods and Myths

To the Greeks, the gods were not distant beings. They became involved in people's lives, and the Greeks loved to tell stories about them. These vivid tales showed that the gods were sometimes cruel and selfish.

MYTHS



Myths are stories that people tell to explain beliefs about their world. Myths often begin as oral (spoken) stories, and later they might be written down. The Greeks would use their myths to explain **why things were the way they were** using elaborate stories about the gods and goddesses.

The Greeks created myths to explain such things as the creation of the world and of human beings. Many myths described the gods and goddesses and how they related to one another and to humans. For example, the myth of Prometheus tells how he stole fire from the gods and gave it to humans. Zeus punished him for this by chaining him to a rock. Every day, an eagle ate his liver–which grew back every night. Today, Prometheus is seen as a hero who defied unjust authority.

The Greek Gods had both divine and human qualities. They were, for example, very powerful and could shape human events, yet they also had a wide range of human emotions – including love, anger, and jealousy. The gods and goddesses of Greece constantly competed with one another. **Zeus** was the ruler of the gods. The Greeks believed that he and 11 other major gods and goddesses lived on **Mount Olympus**, the highest mountain in Greece.

Mount Olympus, Greece's tallest mountain

GREEK LANGUAGE

The English language, which is an amalgamation of several languages, has borrowed generously from the Greek language. In fact, 24.6 percent of the English language has been borrowed from the Greek, and another 24.8 percent has been borrowed from Latin. Of course, Latin has borrowed greatly from the Greek.

The word "alphabet" comes from the first two letters of the Greek alphabet, alpha and beta.

According to one estimate, more than 150,000 words of English are derived from Greek words. Words that starts with 'ph-' are usually of Greek origin, for example: *philosophy, physical, photo, phrase, philanthropy*. Many English words have Greek roots like "telephone." *Tel* = "far off" and *phone* = "voice." As Greek has used adjectives to describe its world, e.g., hippopotamus is composite of *hippo*=horse and *potamus*=river or river horse.

The way we write sentences, punctuation, grammar, and paragraphing are all based from Greek writing.

Many English words are formed of parts of words that originate from the Greek language, including the **following examples**:

- phobia (fear of), as in *arachnophobia* – the fear of spiders
- micro (small), as in *microscopic* – so small it's hard to see
- demos (people) as in *democracy* – government by the people

English expressions derived from Ancient Greek culture

Greek mythology has been very influential in Western culture, particularly its art and literature. Unsurprisingly, some common expressions in English derive from these ancient myths and beliefs.

To have an 'Achilles heel' means to have a weakness or vulnerable point. Achilles was a Greek hero and central character in Homer's epic poem, The Iliad. He was only vulnerable at his heel. Example sentence: *I'm trying to eat more healthily, but chocolate is my Achilles heel.*

The 'Midas touch' is another common expression deriving from Greek mythology. Describing a near-magical ability to succeed at anything one undertakes, the expression originates from a story of King Midas, who is remembered for his ability to turn everything he touched into gold. Example sentence: *My brother's business is so successful, he really has the Midas touch!*

An idiom which has its roots in Greek antiquity is 'crocodile tears'. The phrase is thought to come from the popular ancient belief that crocodiles weep while eating their victims. In fact, crocodiles do wet their eyes via their tear ducts, usually when their eyes start to dry out after being out of the water for a long time. Nevertheless, the behavior is also thought to occur when crocodiles feed. It's used in English to describe expressions of sorrow that are insincere. Example sentence: *The leader shed crocodile tears while allowing the war to go on.*

Look at the alphabet chart on the back. What letter characters look familiar?

Excerpts from: http://www.hellenicnest.com/Greekwords.html AND
https://www.britishcouncil.org/voices-magazine/how-has-greek-influenced-english-language

GREEK ALPHABET

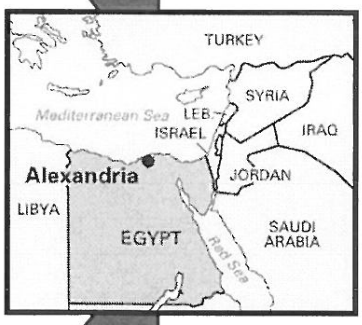
Αα	Ββ	Γγ	Δδ	Εε	Ζζ
ALPHA [a] *ἄλφα*	BETA [b] *βῆτα*	GAMMA [g] *γάμμα*	DELTA [d] *δέλτα*	EPSILON [e] *ἒ ψιλόν*	ZETA [dz] *ζῆτα*
Ηη	Θθ	Ιι	Κκ	Λλ	Μμ
ETA [ɛ:] *ἦτα*	THETA [tʰ] *θῆτα*	IOTA [i] *ἰῶτα*	KAPPA [k] *κάππα*	LAMBDA [l] *λάμβδα*	MU [m] *μῦ*
Νν	Ξξ	Οο	Ππ	Ρρ	Σσς
NU [n] *νῦ*	XI [ks] *ξεῖ*	OMICRON [o] *ὂ μικρόν*	PI [p] *πεῖ*	RHO [r] *ῥῶ*	SIGMA [s] *σῖγμα*
Ττ	Υυ	Φφ	Χχ	Ψψ	Ωω
TAU [t] *ταῦ*	UPSILON [ʉ] *ὗ ψιλόν*	PHI [pʰ] *φεῖ*	CHI [kʰ] *χεῖ*	PSI [ps] *ψεῖ*	OMEGA [ɔ:] *ὦ μέγα*

Excerpts from: http://www.hellenicnest.com/Greekwords.html AND
https://www.britishcouncil.org/voices-magazine/how-has-greek-influenced-english-language

Station 10: Science and Technology

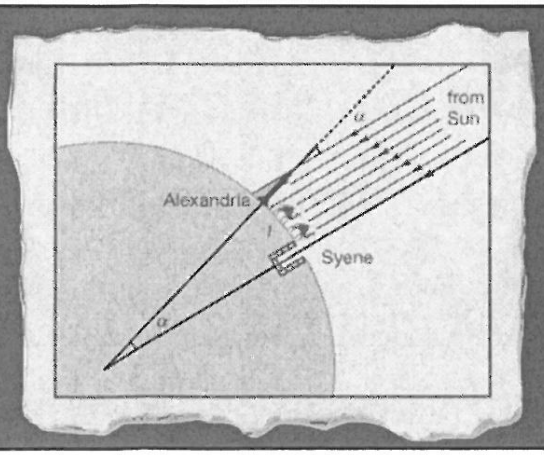
Astronomy

Some important discoveries about the planets and the stars came from scientists studying at Alexandria, Egypt. For instance, Eratosthenes found a way to estimate the circumference, or distance around Earth.



The scientist Ptolemy studied the universe. Unfortunately for the world of science, Ptolemy placed the Earth at the center of the universe. This incorrect view persisted for 1,400 years!

Another scientist at Alexandria, Aristarchus, studied the relationships of the sun, moon, and Earth to each other. He also estimated the size of the sun.



Math & Physics

The first noted female mathematician, Hypatia, taught at Alexandria. Hypatia was also an astronomer, wrote about the works of Ptolemy and geometry, and was also the leader of a philosophical movement based on the works of Plato.

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

Known as the "Father of Geometry," the mathematician Euclid created a geometry textbook complete with theories, proofs, and methods, that was still used in many classrooms until the early 20th century. The work of Euclid is still the basis for geometry.

STATION 9: GREEK PHILOSOPHY

philosophy |fə'läsəfē|
noun (pl. **philosophies**)
the study of the fundamental nature of knowledge, reality, and existence, esp. when considered as an academic discipline.

In the search to find answers, the Greeks developed philosophy, or the study of basic truths and ideas about the universe. 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.

Over a period of time, Greece had many famous philosophers. One of them was Socrates, 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.

One of Socrates' best students was Plato. He was born around 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.

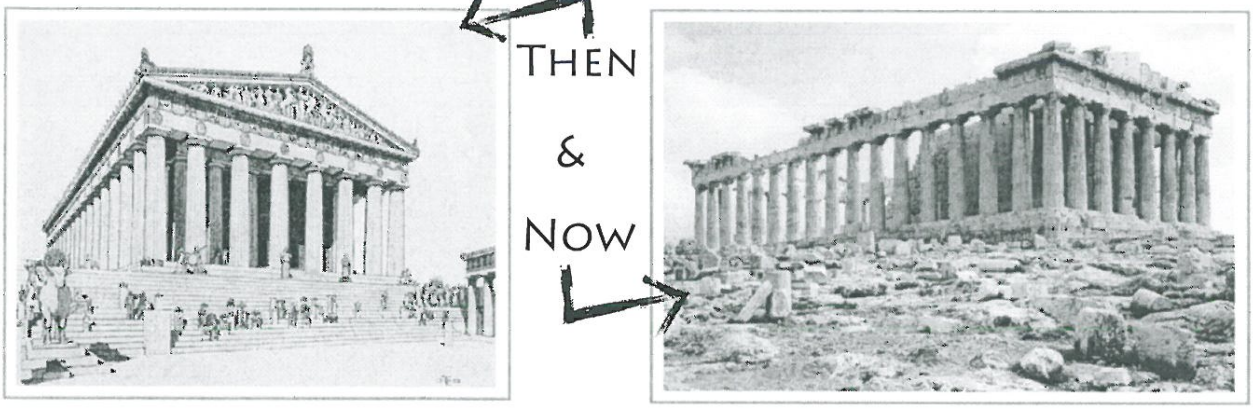
The Academy stayed open for about 900 years. Aristotle was Plato's brightest student. Aristotle lived from 384 to 322 B.C. He invented a method of debating that followed rules of logic. Later, the rules of logic were applied to studies in science. Aristotle opened his own school in Athens called the Lyceum. In addition to this great philosophical work, Aristotle also spent 3 years tutoring Alexander the Great.

Station 7: Greek 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 Parthenon:

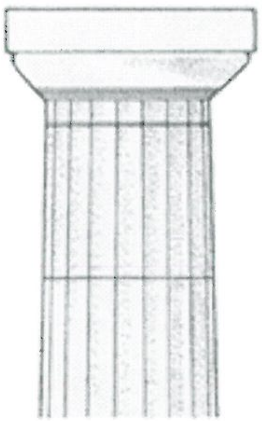
The best example of Greek Architecture!



The Parthenon displayed the temple form that was most often used. It had a four-sided colonnade around a room built to house the statue of the goddess Athena. Sculptural designs that portrayed scenes in Athena's life were put in the pediments of the Parthenon.

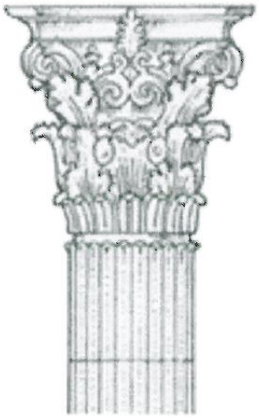
The Greeks developed three architectural systems and columns, called orders, each with their own distinctive proportions and detailing. The Greek orders are: Doric, Ionic, and Corinthian.

Doric



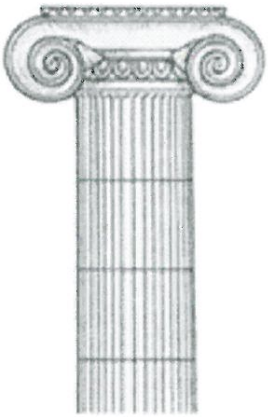
The Doric style is rather sturdy and its top (the capital), is plain. This style was used in mainland Greece and the colonies in southern Italy and Sicily.

Corinthian



The Corinthian style is seldom used in the Greek world but often seen on Roman temples. Its capital is very elaborate and decorated with acanthus leaves.

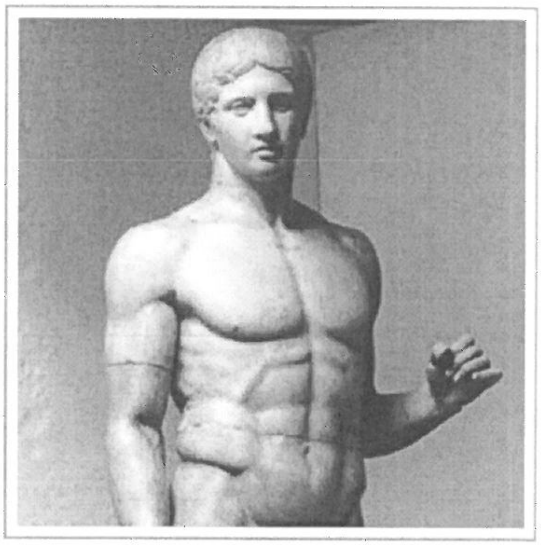
Ionic



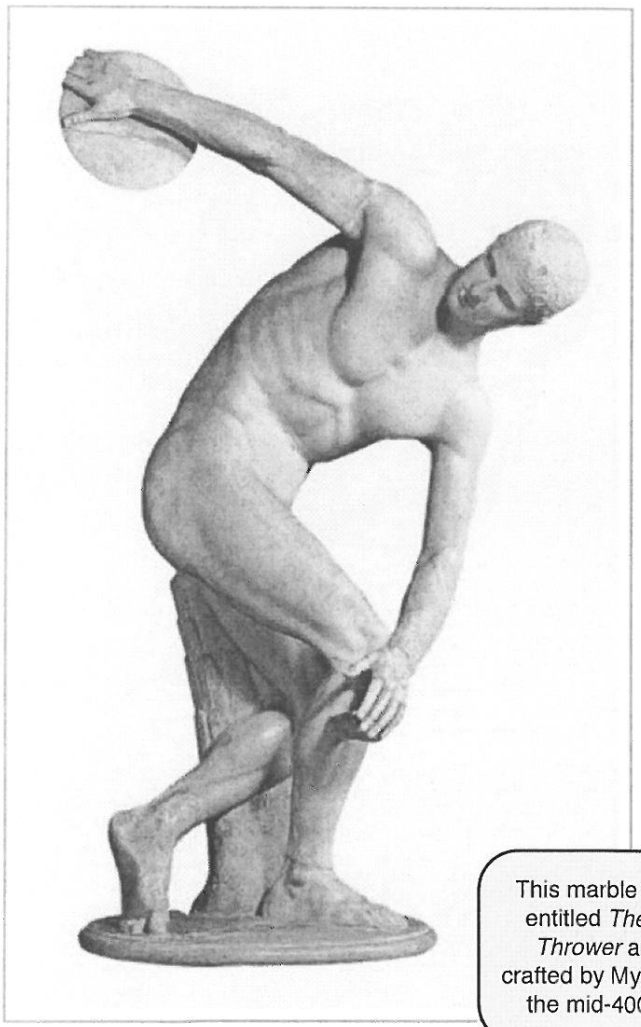
The Ionic style is thinner and more elegant. Its capital is decorated with a scroll-like design (a volute). This style was found in eastern Greece and the islands.

Station 6: Greek Art

Greek art reflected the Greeks' views of themselves and their world. First, Greek art glorified human beings. Greek painters and sculptors **idealized** their human subjects. In other words, the faces and figures of men and women represented the Greek ideal of beauty. The statues also suggested other traits admired by the Greeks, such as strength, intelligence, pride, grace, and courage.



Greek art symbolized Greek pride in their city states. Art was meant for public enjoyment, and the architecture of public buildings was meant to be a monument to the power and glory of the "polis", or "city" in Greek. Through art, Greeks tried to win the favor of the gods.



This marble statue is entitled *The Discus Thrower* and was crafted by Myron during the mid-400s BCE.

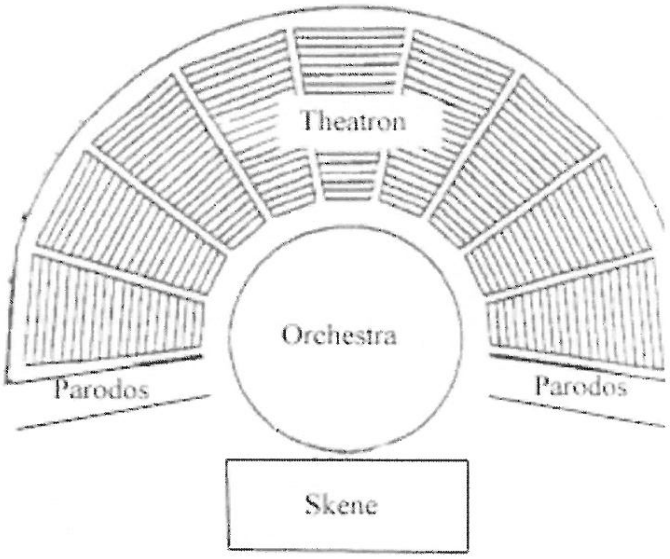
Many Greek sculptures portrayed the gods, and these sculptures were placed inside temples, thus honoring the gods they portrayed. The Greeks used many different types of materials in their sculptures, including stone, marble and limestone as these were abundant in Greece. One of the most famous statues was created to honor the goddess Athena. Pericles appointed the sculptor Phidias to direct the building of the Parthenon as a house for Athena. Phidias also created a statue of Athena for the Parthenon's interior. He made the statue of gold and ivory; when finished, Phidias' creation stood more than thirty feet tall.

Very few Greek painted pictures have survived the 2500 years since they were painted. Therefore, most of what we know about Greek art comes from the pictures they painted on fancy **pottery**. Pottery, even if it gets broken, can be put back together, and a good deal of it has even survived whole, mostly in Etruscan tombs. Greek painted pottery changed a good deal over time, from the Stone Age to the Hellenistic period.

Station 5: The Greek Theater

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. Greek drama was a part of every city's religious festivals.

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.



Parts of a Greek Theater

Drama had two forms: 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.

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.

One example of a classic Greek tragedy is the play <u>Oedipus Rex</u> by Sophocles.

Oedipus: In a Nutshell

King Laius is willing to order his son, Oedipus, to be killed when a prophet tells him that his son will be his murderer. Oedipus's mother is unwilling to kill her son, so she secretly gives him away to what will become Oedipus's foster parents. These foster parents never tell Oedipus that he is not really their son, so when Oedipus runs into the same prophet who tells him he will kill his father, he decides to run away.

On the road, Oedipus runs into plenty of things including a Sphinx (a winged monster, having a woman's head, a lion's body, the wings of an eagle, and a serpent-headed tail) that is terrorizing a city. To beat the Sphinx, Oedipus must answer a riddle correctly. If he gets the riddle wrong he will die. The riddle of the Sphinx was:

"What goes on four legs in the morning, on two legs at noon, and on three legs in the evening?"

Oedipus was able to solve the riddle, so the Sphinx killed herself.

Next Oedipus came across an unknown traveler on the same road. Insults were exchanged between the two, but in the end Oedipus killed the unknown traveler to protect his honor. Soon, Oedipus found out the unknown traveler was, in fact, a King. This meant Oedipus would take over the kingdom and the Queen would now become his wife. Things were really starting to look up for Oedipus, until the prophet came back. The prophet informed Oedipus he had, in fact, killed his biological father King Laius on the road and ended up marrying and sleeping with his mother the Queen.

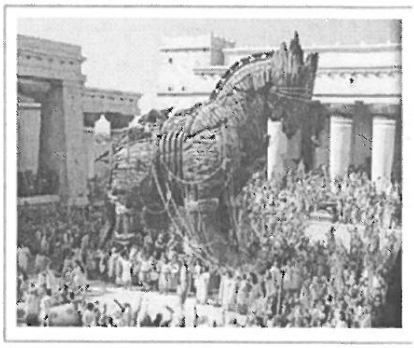
Oedipus could not handle the news, so he decided he would scoop out his eyeballs and walk the Earth for the rest of eternity blind and poor. The extremely sad ending for the hero of the story, Oedipus, is what makes this play a perfect example of a tragedy.

STATION 4: GREEK LITERATURE

Much of what we know about the early Greeks comes from stories passed down through generations and from long poems that told stories. These long poems are called epic poems. According to tradition, a blind man, Homer, composed the most famous epics.

In addition to stories about gods, the Greeks told stories about their ancient heroes

Homer's epic the Iliad is about the Trojan War, which started because a Trojan (a person from the city of Troy) stole a Greek king's wife. In the Iliad, the Greeks surrounded the city of Troy for more than nine years, trying to capture it. Finally, the Greeks convinced the Trojans they had left - by building a conciliatory wooden horse that was so large the city walls had to be taken down to have it brought inside. However, many Greek soldiers were waiting inside, and once inside the city walls, the Greeks destroyed the city.



The Iliad is famous for its portrayal of heroes - including the warrior Achilles. When Achilles was a baby, his mother dipped him in a river that would make him live forever. When he was grown, however, an arrow wounded Achilles in his one weak spot - the heel his mother held as she lowered him in the water.

For centuries, people thought Homer's story was fiction. Around 1870, archaeologists discovered the ruins of ancient Troy. A real war did take place there, but it did not happen exactly as the Iliad portrays it.

Homer's other major epic was the Odyssey. It describes the adventures of the Greek hero Odysseus after the Trojan War. The Greek gods decided that Odysseus' trip home should take ten years. During that time, he and his men encountered many dangers. The gods sometimes helped Odysseus and sometimes worked against him.

A **fable** is a short story, usually involving animals, that teaches a moral lesson. A storyteller named **Aesop** is credited with writing down many ancient Greek fables.

One of Aesop's best-known fables is **"The Hare and the Tortoise."** In it, a hare (rabbit) makes fun of a tortoise (turtle) for being slow. The tortoise challenges the hare to a race. You know the rest of the tale, but the important part is the moral of the story: slow and steady wins the race. We still use this story today to encourage people to work steadily at a task that seems impossible to accomplish.

▶ **These ancient stories still influence speech and art today.**

▶ **For instance, we use the phrase Achilles' heel to refer to a person's weakest area.**

Station C: Medicine

1. **Read the information about medicine and list major achievements.** Carefully read and discuss the information below about the ancient Greeks' achievements in the field of medicine. Then, list three major ancient Greek achievements in the field of medicine in the Station C section of **Student Handout 4.1A**.

Initially, the Greeks had little knowledge of medicine. They believed that the Gods caused diseases. To cure patients, doctors chanted verses to the Gods, and used charms and magical ointments. Sometimes they advised a sick person to make sacrifices to the Gods.

In the fifth century B.C.E., a physician named Hippocrates (pronounced hih-PAH-krah-teez) began a medical school. He and his followers introduced new teachings and practices that changed the entire field of medicine. Hippocrates and his associates argued that it was disrespectful to the Gods to claim they would deliberately cause diseases and harm the human body. Instead, they argued, physicians should examine the effects of water, food, and climate upon a person's health. Furthermore, Hippocrates taught his students to observe and record the stages of an illness. He believed that after repeatedly observing a disease, a doctor could make an accurate prediction about the course that the disease would take.

The most famous contribution the Greeks made to modern medicine is the *Hippocratic* (pronounced hih-poh-KRA-tik) *Oath*. Doctors taking this oath promise to honor their teachers, do their best for the sick, never give anyone poison, and keep the secrets of their patients. Hippocrates probably did not write the oath, but students at his school most likely took a similar pledge before they were allowed to study there. The Greeks thought an ethical code for doctors was necessary because the practice of medicine was not regulated by the government—making it easy for dishonest individuals to take advantage of the sick. Over time, the medical profession has changed the original Hippocratic Oath to fit the modern practice of medicine. Nevertheless, the oath doctors take today still emphasizes patients' dignity and confidentiality, and the doctor's responsibility to use knowledge appropriately.

Hippocratic Oath

I swear by Apollo the physician, and Asclepius, and Hygieia and Panacea and all the gods and goddesses as my witnesses, that, according to my ability and judgement, I will keep this Oath and this contract:

To hold him who taught me this art equally dear to me as my parents, to be a partner in life with him, and to fulfill his needs when required; to look upon his offspring as equals to my own siblings, and to teach them this art, if they shall wish to learn it, without fee or contract; and that by the set rules, lectures, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to students bound by this contract and having sworn this Oath to the law of medicine, but to no others.

I will use those dietary regimens which will benefit my patients according to my greatest ability and judgement, and I will do no harm or injustice to them.

I will not give a lethal drug to anyone if I am asked, nor will I advise such a plan; and similarly I will not give a woman a pessary to cause an abortion.

In purity and according to divine law will I carry out my life and my art.

I will not use the knife, even upon those suffering from stones, but I will leave this to those who are trained in this craft.

Into whatever homes I go, I will enter them for the benefit of the sick, avoiding any voluntary act of impropriety or corruption, including the seduction of women or men, whether they are free men or slaves.

Whatever I see or hear in the lives of my patients, whether in connection with my professional practice or not, which ought not to be spoken of outside, I will keep secret, as considering all such things to be private.

So long as I maintain this Oath faithfully and without corruption, may it be granted to me to partake of life fully and the practice of my art, gaining the respect of all men for all time. However, should I transgress this Oath and violate it, may the opposite be my fate.

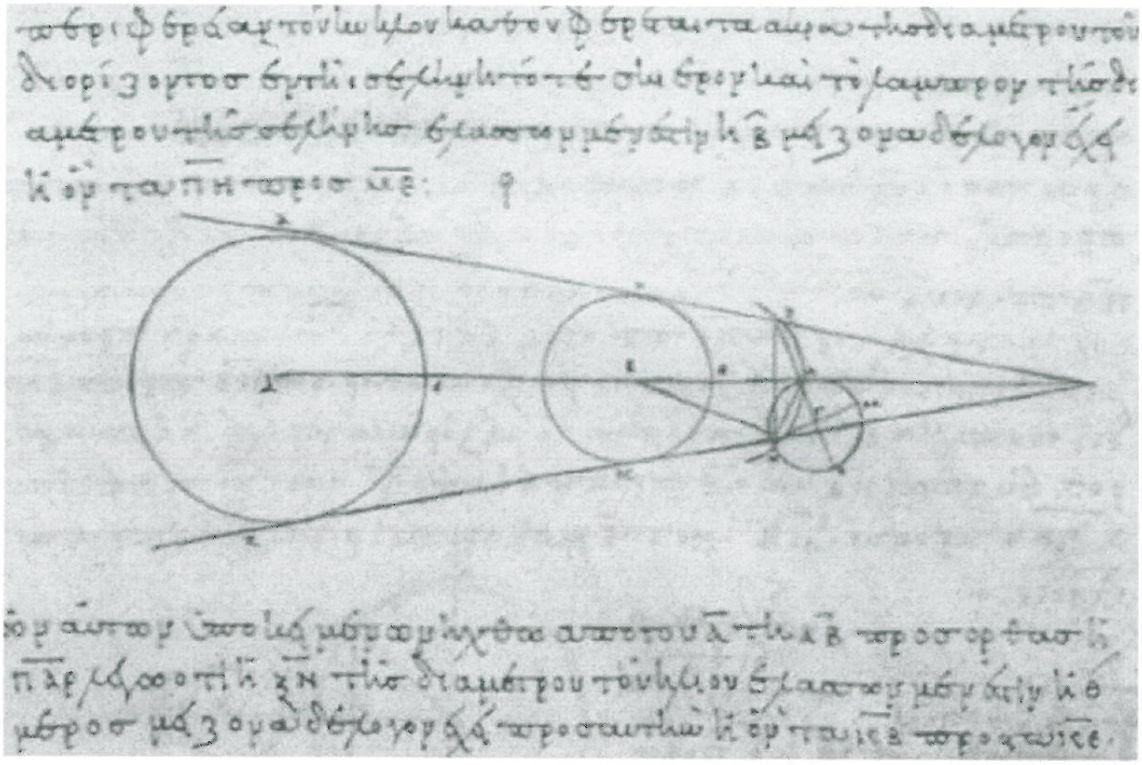
Translated by Michael North, National Library of Medicine, 2002. Found online at:
https://www.nlm.nih.gov/hmd/greek/greek_oath.html

Station D: Astronomy

1. **Read the information about astronomy and list major achievements.** Carefully read and discuss the information below about the ancient Greeks' achievements in the field of astronomy. Then, list three major ancient Greek achievements in the field of astronomy in the Station D section of **Student Handout 4.1A**.

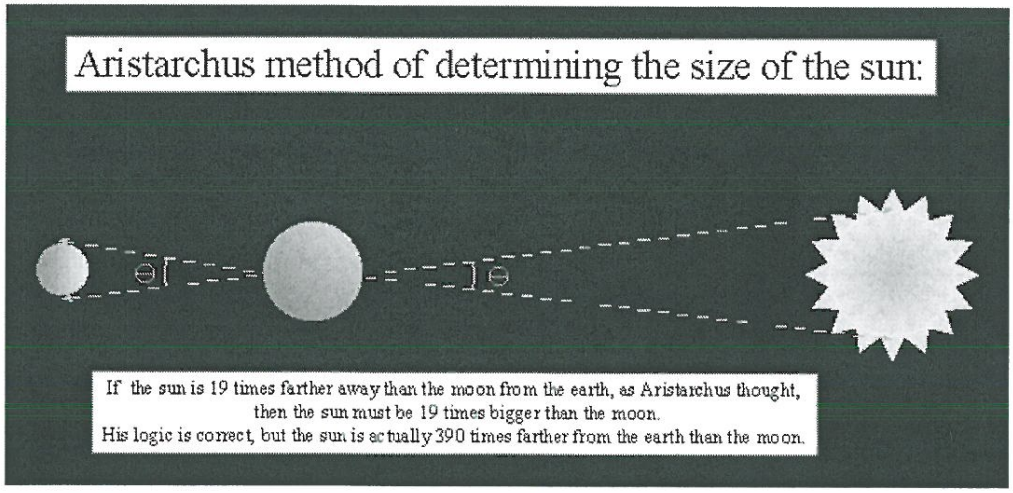
The ancient Greeks contributed much knowledge to the field of *astronomy*, the study of the planets, stars, and other objects in the universe. Greek astronomers mapped the positions of the stars and discovered the existence of the planets Mercury, Venus, Mars, Jupiter, and Saturn. They proposed that the Earth turned, or *rotated*, on its *axis*, an imaginary line through the Earth between the North Pole and the South Pole. Some astronomers tried to calculate the sizes of the Sun and the Moon and their distances from the Earth. The Greeks also predicted solar *eclipses*, when the Moon, moving between the Earth and the Sun, blocks out the sun's light. Greek astronomers were able to identify the spring and fall *equinoxes*, when the Sun is directly over the equator and the lengths of the day and the night are almost equal. It was also a Greek who proposed that the pull of the Moon's gravity causes ocean tides to rise and fall.

One of the most important Greek astronomers was Aristarchus (pronounced air-ih-STAR-kiss). He proposed that the Sun was the center of the solar system, and that the planets revolved around it. Scholars do not know the techniques he used to reach his conclusions, because most of his original work was lost. Most Greeks refused to accept Aristarchus's ideas. They believed the Earth was the center of the solar system. Religious people felt that the Gods certainly would place the Earth at the center of their creation. Fellow scientists argued that the stars did not change their positions in the sky, which would happen if the Earth circled the sun. It was not until the 1500s C.E.—when Nicolaus Copernicus (pronounced koh-PURN-ih-kiss) also suggested that the Sun, not the Earth, is the center of the solar system—that astronomers accepted Aristarchus's theory. Over time, astronomers have refined Aristarchus's beliefs. In addition to the planets the Greeks knew, later scientists discovered Uranus, Neptune, and Pluto. Astronomers have also determined the distances between the Sun and each planet. Often they express these distances in astronomical units (abbreviated AU). One astronomical unit equals 93 million miles, the distance from the Sun to the Earth.



Aristarchus's 3rd-century BCE calculations on the relative sizes of (from left) the Sun, Earth and Moon, from a 10th-century CE Greek copy

Source: http://en.wikipedia.org/wiki/File:Aristarchus_working.jpg



Source: http://astrosun2.astro.cornell.edu/academics/courses/astro201/aristarchus.htm

Station G: Mathematics

1. **Read the information about mathematics and list major achievements.** Carefully read and discuss the information below about the ancient Greeks' achievements in the field of mathematics. Then, list three major ancient Greek achievements in the field of mathematics in the Station G section of **Student Handout 4.1A**.

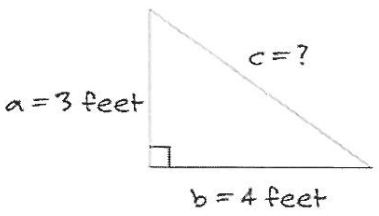
Ancient Greeks made many discoveries in the field of mathematics, especially in *geometry*, a branch of mathematics that deals with the measurements and properties of points, lines, angles, surfaces, and shapes. Although the word *geometry* comes from the Greek word *geometrein* (meaning "to measure the earth"), other civilizations used this field of mathematics long before the Greeks. However, it was Greek mathematicians who most clearly explained the rules of geometry.

Euclid (pronounced YOO-klid), whom some call the "father of geometry," was one of the most famous mathematicians in ancient Greece. He collected and organized most of the existing knowledge of geometry into several books called *Euclid's Elements*. In his *Elements*, Euclid began with true statements, or *axioms*, that require no proof. From these axioms, he used logic to prove assumptions that he believed to be true, called *theorems*. Mathematicians have praised these books for their clarity and organization. Until 1900 C.E., *Euclid's Elements* was the basic textbook for geometry classes throughout the world.

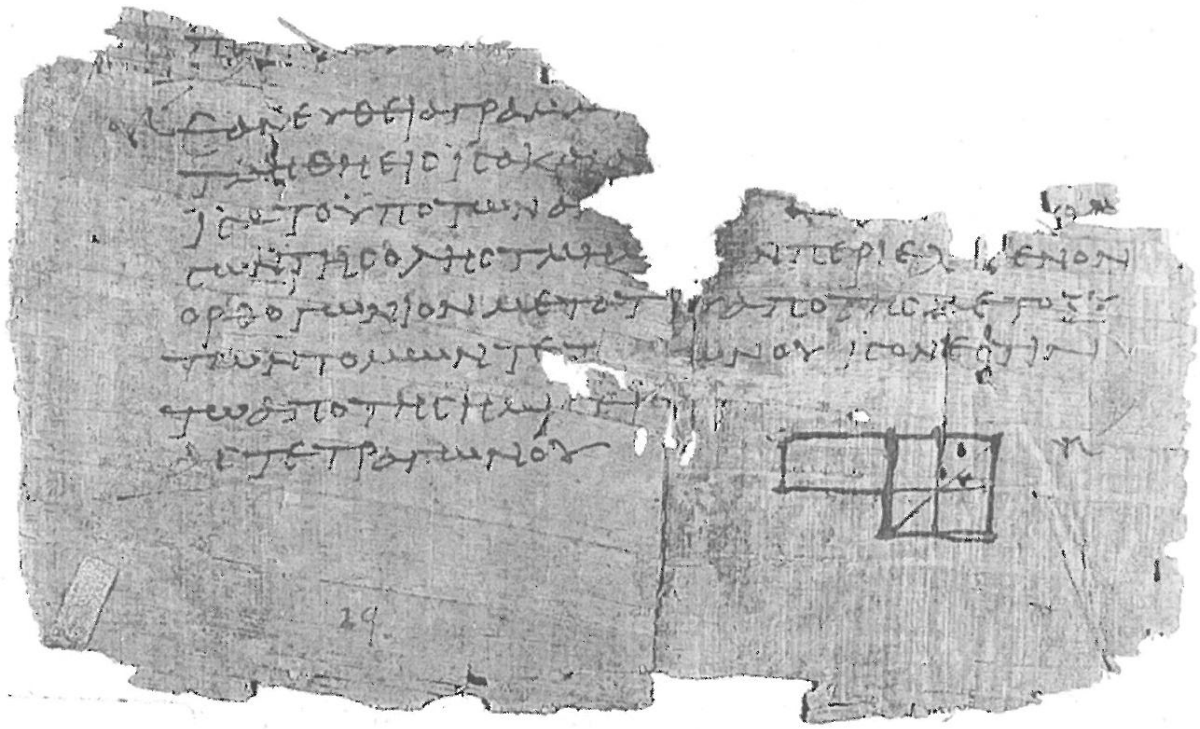
Another very influential ancient Greek was the mathematician and philosopher Pythagoras (pronounced puh-THA-guh-russ). He and his followers believed that all the secrets of the universe could be learned through the study of numbers. Pythagoras is best remembered today for the *Pythagorean Theorem* (pronounced puh-THA-guh-REE-an THEE-a-rum), a mathematical theorem used to describe the relationship between the three sides of a right triangle. The longest side of a right triangle—the side opposite the right angle—is called the *hypotenuse* (pronounced hy-PAH-ten-ooss). The two sides that form the right angle are called the *legs*. Pythagoras proved that the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs. Ancient Egyptian mathematicians already believed this to be true, but it was Pythagoras, historians say, who proved it.

If you know the lengths of two sides of a right triangle, you can use the Pythagorean Theorem to find the length of the third side.

$a^2 + b^2 = c^2$



$3^2 + 4^2 = c^2$
$9 + 16 = c^2$
$25 = c^2$
$c = \sqrt{25}$
$c = 5$



One of the oldest surviving fragments of Euclid's *Elements*, found at Oxyrhynchus and dated to circa AD 100 (P. Oxy. 29). The diagram accompanies Book II, Proposition 5. Source: http://en.wikipedia.org/wiki/File:P._Oxy._I_29.jpg

Statue of Euclid in the Oxford University Museum of Natural History
Source: http://en.wikipedia.org/wiki/File:EuclidStatueOxford.jpg

Station E: Zoology

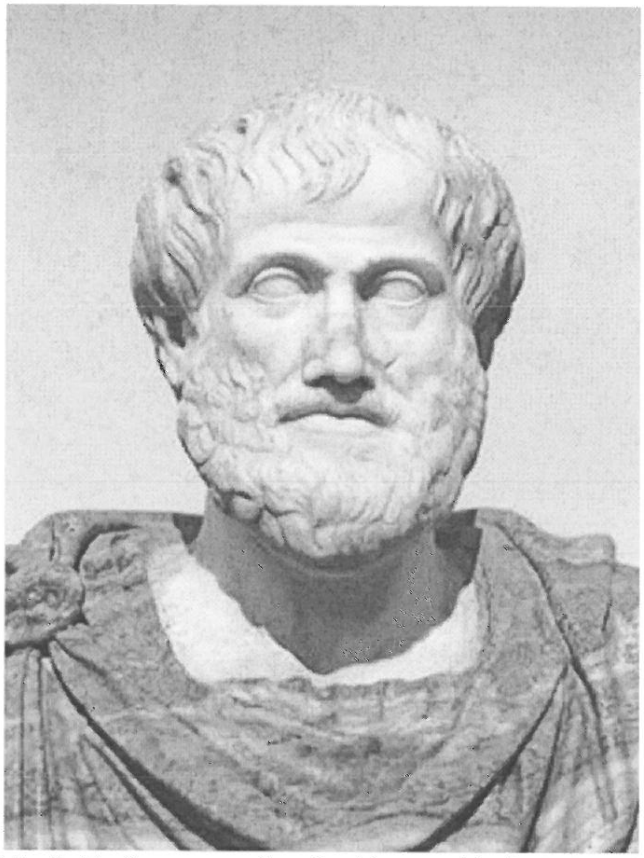
1. **Read the information about zoology and list major achievements.** Carefully read and discuss the information below about the ancient Greeks' achievements in the field of zoology. Then, list three major ancient Greek achievements in the field of zoology in the Station E section of **Student Handout 4.1A.**

The study of *zoology* (pronounced zoh-OLL-ah-jee), a scientific field that describes, classifies, and explains the development of animal life, fascinated the ancient Greeks. Before the Greeks, most people believed that the Gods created various animals and gave each creature special characteristics. Greek scholars rejected this belief and searched for a different explanation for the variety of animal life. Two Greek scientists were especially important in the field of zoology.

One of the first ancient Greeks to propose a theory about the development of animals was Anaximander (pronounced an-AX-ih-MAN-dur). He believed that animals developed, or *evolved*, from an earlier life-form. According to Anaximander, all living things came from water. Sea animals that grew inside shells were the first form of life. He said that over time, the sun evaporated the water, and land appeared. The sea animals then came ashore, shed their shells, and adapted to a new way of life. Anaximander thought humans came from these early sea creatures.

Today, scientists accept the basic idea of evolution, but have made several important changes to Anaximander's theories. Scientists believe that single-cell creatures, or *organisms*, in the sea may have been the first form of life. Furthermore, they believe that organisms change through a process called *natural selection*. According to natural selection, members of each generation of living things pass on to their offspring those characteristics that enabled them to survive in nature. For example, a turtle's shell enables it to survive hostile attacks. Finally, scientists use the study of genes, or *genetics*, to explain how one generation passes characteristics to another.

A second ancient Greek scientist, Aristotle (pronounced AR-uh-STAH-tull), greatly advanced the field of zoology. Aristotle developed a basic system for classifying all living things into groups, and gave names to the groups. He divided all plants and animals into a descending order of categories—kingdom, genus, and species—that were increasingly more limited, or *exclusive*. For example, dogs, tigers, and monkeys are all members of the animal *kingdom*. However, each of these animals is a member of a separate *genus* because of distinguishing features such as size, shape, and number of teeth. Finally, each genus has numerous *species*, a more exclusive category based on other factors or features. For example, hounds and terriers are both species of the genus of dogs. Modern scientists have refined Aristotle's system into nine categories, but the terms he introduced are still used today.



Bust of Aristotle. Marble, Roman copy after a Greek bronze original by Lysippos from 330 BC; the alabaster mantle (cloak) is a modern addition. (Public Domain)

Aristotle wrote a number of treatises based around his study of Zoology:

- The Parts of Animals
- The History of Animals
- The Movement of Animals
- The Progression of Animals
- On Sense and Sensible Objects
- On Memory and Recollection
- On Sleep and Waking
- On Dreams
- Of Prophecy in Sleep
- On Length and Shortness of Life
- On Youth and Old Age
- On Life and Death
- On Respiration
- On Breath
- On Plants

Source: http://explorable.com/aristotles-zoology

GREEK SPORTS & OLYMPICS

The Greeks invented athletic contests and held them in honor of their gods. The most famous games held at Olympia, South- West of Greece, which took place every four years. The ancient Olympics seem to have begun in the early 700 BC, in honor of Zeus. No women were allowed to watch the games and only Greek nationals could participate.

The games at Olympia were greatly expanded from a one-day festival of athletics and wrestling to, in 472 BC, five days with many events. The order of the events is not precisely known, but the first day of the festival was devoted to sacrifices. On the Middle Day of the festival 100 oxen were sacrificed in honor of a God. Athletes also often prayed and made small sacrifices themselves.

On the second day, the foot-race, the main event of the games, took place in the stadium, an oblong area enclosed by sloping banks of earth.

At Olympia there were 4 different types of races; The first was stadion, the oldest event of the Games, where runners sprinted for 1 stade, the length of the stadium (192m). The other races were a 2-stade race (384 m.), and a long-distance run which ranged from 7 to 24 stades (1,344 m. to 4,608 m.).The fourth type of race involved runners wearing full armor, which was 2-4 stade race (384 m. to 768 m.), used to build up speed and stamina for military purposes.

On other days, wrestling, boxing, and the pancratium, a combination of the two, were held. In wrestling, the aim was to throw the opponent to the ground three times, on either his hip, back or shoulder. In ancient Greek wrestling biting and genital holds were illegal.

Boxing became more and more brutal; at first the boxers wound straps of soft leather over their fingers as a means of deadening the blows, but in later times hard leather, sometimes weighted with metal, was used. In the pancratium, the most rigorous of the sports, the contest continued until one or the other of the participants acknowledged defeat.

Horse-racing, in which each entrant owned his horse, was confined to the wealthy but was nevertheless a popular attraction. The course was 6 laps of the track, with separate races for whereupon the rider would have no stirrups. It was only wealthy people that could pay for such training, equipment, and feed of both the rider and the horses. There were also Chariot races, that consisted of both 2-horse and 4-horse chariot races, with separate races for chariots drawn by foals. There was also a race was between carts drawn by a team of 2 mules, which was 12 laps of the stadium track.

After the horse-racing came the pentathlon, a series of five events: sprinting, long-jumping, javelin-hurling, discus-throwing, and wrestling.

The ancient Greeks considered the rhythm and precision of an athlete throwing the discus as important as his strength.

The discus was a circle shaped stone, iron, bronze, or lead. There were different sizes according to age groups. The javelin was a long wooden stick shape with spear head, similar height to that of a person. In the middle was bound a thong for a hurler's fingers to grip and guide to the correct angle it was thrown.

To jump long distances athletes used lead or stone weights to increase the length of the jump. These weights were known as 'halteres' were held in front of the athlete during his ascent, and then swung behind his back and dropped during his descent to help propel him.

Source: http://www.ancientgreece.com/s/Olympics/