

## 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.*

