

# Our Solar System

Our solar system includes the Sun, nine known planets, their satellites (or moons), and a variety of other, smaller objects. The largest object in the solar system is the Sun, containing about 99.86% of the total mass of our solar system. The planets are much smaller, nonluminous, solid objects that revolve around the Sun and are held in their orbits by gravity. Including Earth, the planets make up only 0.135% of our solar system's mass. The satellites, or moons, are still smaller nonluminous solid objects that revolve around the planets. Each satellite is held in orbit by gravity, and is pulled along as the planet orbits the Sun.

Studying the planets in a meaningful way first requires a useful scale with which to make comparisons. A standard approach in astronomy is to compare the planets to the one we know best, Earth, and therefore to use it to establish our scale. For example, a planet's mass (the amount of matter in an object) can be expressed in terms of Earth-mass, and its density (the amount of matter that occupies a particular space, equal to mass/volume) can be expressed in terms of Earth-density. Thus, if a planet's density is greater than 1, its composition is denser than that of Earth.

Useful time scales are days for planet rotation periods and years for their orbital periods (length of time needed to orbit the Sun). For surface temperatures, the Celsius ( $^{\circ}\text{C}$ ) scale is standard.

## Building a Planet Database

You will be provided with a lot of planetary information in this section. One of the best ways to organize any large body of information is to do what scientists do all the time: build a database. A database is a collection of data that is presented in table or spreadsheet form and arranged into useful categories. These can help a researcher detect similarities, differences, and any other patterns in the information. Often the patterns themselves lead to new questions and, in turn, that line of inquiry results in the gathering of new information that gets added to the database. In this activity, you will have a chance to create your own database of planetary information, which you will then use to interpret your findings.

Read the planetary information on pages 448 to 452 of your textbook. Enter the information you need to complete the columns in database on the next page.



