

Other Objects in the Solar System

as you read

What You'll Learn

- **Describe** how comets change when they approach the Sun.
- **Distinguish** among comets, meteoroids, and asteroids.
- **Explain** that objects from space sometimes impact Earth.

Why It's Important

Comets, asteroids, and most meteorites are very old. Scientists can learn about the early solar system by studying them.



Review Vocabulary

crater: a nearly circular depression in a planet, moon, or asteroid that formed when an object from space hit its surface

New Vocabulary

- comet
- meteorite
- meteor
- asteroid

Figure 17 Comet Hale-Bopp was most visible in March and April 1997.

Comets

The planets and their moons are the most noticeable members of the Sun's family, but many other objects also orbit the Sun. Comets, meteoroids, and asteroids are other important objects in the solar system.

You might have heard of Halley's comet. A **comet** is composed of dust and rock particles mixed with frozen water, methane, and ammonia. Halley's comet was last seen from Earth in 1986. English astronomer Edmund Halley realized that cometary sightings that had taken place about every 76 years were really sightings of the same comet. This comet, which takes about 76 years to orbit the Sun, was named after him.

Oort Cloud Astronomer Jan Oort proposed the idea that billions of comets surround the solar system. This cloud of comets, called the Oort Cloud, is located beyond the orbit of Pluto. Oort suggested that the gravities of the Sun and nearby stars interact with comets in the Oort Cloud. Comets either escape from the solar system or get captured into smaller orbits.

Comet Hale-Bopp On July 23, 1995, two amateur astronomers made an exciting discovery. A new comet, Comet Hale-Bopp, was headed toward the Sun. Larger than most comets that approach the Sun, it was the brightest comet visible from Earth in 20 years. Shown in **Figure 17**, Comet Hale-Bopp was at its brightest in March and April 1997.

