



THE STAR★WITNESS

Supplemental Educational Support Materials for Special Feature: "Returning Comet Holmes Dazzles Sky Watchers"

Discussion questions

Q1.

Why is Comet Holmes different from many other short-period comets?

Answer:

Many comets lose ice particles when they travel close to the Sun. Comet Holmes, however, appears to have ejected chunks of ice when it was moving away from the Sun. The comet had a similar outburst more than 100 years ago.

Comet Holmes is a member of the Jupiter family of comets, which orbits between Jupiter and the Sun. Asteroids also follow a similar orbit. Most of the Jupiter-type comets orbit the Sun every 20 years or so. Comet Holmes, however, orbits the Sun every seven years. Other short-period comets complete trips around the Sun roughly every 20 to 200 years.

Q2.

Name some famous comets you have read about.

Answer:

- **Comet Hale-Bopp:** First spied in 1995, Comet Hale-Bopp may have been the most viewed comet in recorded history. The comet holds the record for the longest period of viewing with the unaided eye: an astonishing 19 months. It will not appear again for another 2,400 years.
- **Comet Swift-Tuttle, 1992:** This comet was first seen in July 1862. As Comet Swift-Tuttle moves closer to the Sun every 120 years, it leaves behind a trail of dust debris that provides the ingredients for a spectacular meteor shower called the Perseids, seen in July and August.
- **Comet Hyakutake:** First discovered in 1996 by a Japanese amateur astronomer, Comet Hyakutake had one of the longest tails ever observed. The Hubble Space Telescope studied the nucleus of this comet in great detail. Its orbit will not bring it near the Sun again for about 14,000 years.
- **Comet Halley:** Comet Halley is perhaps the most famous comet in history. It was named after British astronomer Edmund Halley, who calculated its orbit. He determined that the comets seen in 1531 and 1607 were the same objects that followed a 76-year orbit. Comet Halley will return to the inner solar system in the year 2061.
- **Comet Shoemaker-Levy 9:** This comet was discovered in 1993. Between July 16 and July 22, 1994, more than 20 fragments of Comet Shoemaker-Levy 9 collided with the planet Jupiter. The Hubble Space Telescope took many spectacular pictures of this event as the comet's pieces crashed into Jupiter's Southern Hemisphere. It was the first collision of two solar system bodies ever to be recorded.

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Vocabulary words

Astronomer

A scientist who studies the universe and the celestial bodies residing in it, including their composition, history, location, and motion. Many of the scientists at the Space Telescope Science Institute are astronomers. Astronomers from all over the world use the Hubble Space Telescope.

Comet nucleus

The core of a comet, made up of ice, dirt, and rock.

Orbit

The act of traveling around a celestial body, or the path followed by an object moving around a celestial body. The planets, for example, travel around, or orbit, the Sun because the Sun's gravity keeps them in their paths, or orbits.

Short-period comet

A comet that orbits mainly in the inner solar system. These objects usually orbit the Sun in less than 200 years. Halley's Comet is an example of a short-period comet.