THE STAR WITNESS

Supplemental Educational Support Materials

for Special Feature: "Closing in on Saturn's Rings"

Discussion questions

Q1.
What do Cassini mission scientists hope to learn about Saturn's rings in the next four years?

Answer:
Scientists hope Cassini will help explain how and when Saturn's rings were formed, why there are gaps between the rings, and even why Saturn has such a spectacular ring system.

Q2.
All the gas giant planets (Jupiter, Saturn, Uranus, and Neptune) have rings. Why is Saturn the only planet that is famous for its rings?

Answer:
Other planets have rings, but they are so faint that we cannot easily see them. That is because they are probably less icy and more rocky, which makes them darker and harder to see. Saturn's rings stand out because they are so bright. Their brightness is due to their makeup. The rings are made of icy material that reflects sunlight, just as ice does on Earth.

Q3.
If you could ask a Cassini scientist several questions about Saturn, what would they be?

Answer:
Your answers will vary. Here are a few possibilities:
• Why did it take so long for Cassini to get there?
• How many pictures will Cassini take of Saturn?
• What process made the rings?
• Can humans ever visit Saturn?
• How does Cassini orbit Saturn without hitting the rings?
• Can Cassini take close-up pictures of the particles that make up the rings?
• How old are the rings?
• Why are there gaps in the rings?

Continued …

Vocabulary words

Gas Giant
A large planet made up almost entirely of hydrogen and helium gas, and, therefore, having no solid surface. There are four gas giants in our solar system: Saturn, Jupiter, Neptune, and Uranus.

Observation
In science, an observation is a fact or occurrence that is noted and recorded. The Hubble Space Telescope is a tool astronomers use to make observations of celestial objects.

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