



## THE STAR★WITNESS

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### Supplemental Educational Support Materials for Special Feature: "What Comes Around, Goes Around: Celebrating Hubble's 100,000th Orbit"

#### Discussion questions

**Q1.**

**What is unique or special about the Hubble Space Telescope's design?**

**Answer:**

The Hubble Space Telescope is the first space telescope designed to be serviced in space. Servicing missions extend its operating life and keep it up-to-date.

**Q2.**

**What two things will Servicing Mission 4 accomplish?**

**Answer:**

Servicing Mission 4 will increase Hubble's scientific power and keep it operational until at least 2013.

**Q3.**

**Identify some of Hubble's scientific contributions from the past 18 years.**

**Answer:**

Hubble has made about 870,000 observations resulting in more than 560,000 images of celestial objects. It has helped astronomers learn about how stars form and die and how galaxies evolve over time. The telescope also has helped astronomers determine a more exact age for the universe.

**Q4.**

**With Hubble making 100,000 orbits in 18 years, estimate the number of orbits Hubble makes in one year.**

**Answer:**

Hubble makes between 4,000 and 5,000 orbits a year.

*Continued ...*

## 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.

### **Celestial**

Of or relating to the sky or visible objects in the sky, like the Moon, Sun, planets, comets, asteroids, stars, and galaxies.

### **Galaxy**

A collection of stars, gas, and dust bound together by gravity. The smallest galaxies may contain only a few hundred thousand stars, while the largest galaxies have thousands of billions of stars. The Milky Way galaxy contains our solar system. Galaxies are classified or grouped by their shape. Round or oval galaxies are elliptical galaxies and those showing a pinwheel structure are spiral galaxies. All others are called irregular because they do not resemble elliptical or spiral galaxies.

### **Observatory**

A structure designed and equipped for making astronomical observations. Observatories are located on Earth and in space.

### **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.