The Hubble Space Telescope

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From its position 380 miles above Earth's surface, the Hubble Space Telescope has contributed enormously to astronomy. It has expanded our understanding of star birth, star death, and galaxy evolution, and has helped move black holes from scientific theory to fact. Credited with more than 500,000 images and the subject of thousands of research papers, the space telescope is helping astronomers answer a wide range of intriguing questions about the origin and evolution of the universe.

How the Telescope Works

Hubble's science instruments serve as astronomers' eyes on the universe. Once the telescope observes its celestial object, its onboard computers convert the data into long strings of numbers that are beamed down to Earth via communications satellites. The data are then translated into information and pictures, which scientists study. Hubble is currently equipped with spectrographs and cameras sensitive to ultraviolet, visible, and infrared light.

The Telescope's Name

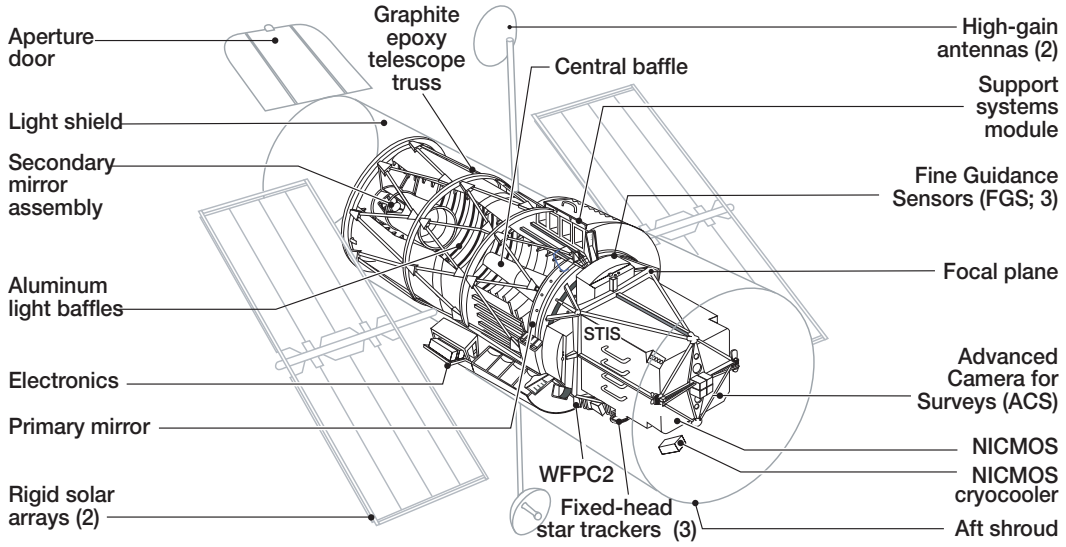
NASA named the Hubble Space Telescope for astronomer Edwin P. Hubble. After discovering in 1929 that most galaxies were racing away from Earth, he proposed that the universe was expanding. Hubble's observation — one of the greatest triumphs of 20th-century astronomy — now forms the foundation of the "Big Bang" theory of the creation and evolution of the universe.

VOCABULARY

Spectrograph: An instrument that spreads light into its component colors for detailed study.

Ultraviolet: Radiation with shorter wavelengths and higher frequencies than those of visible light.

Infrared: Radiation with slightly longer wavelengths and slightly lower frequencies than those of visible light.



The Telescope's Design. NASA designed the telescope so that astronauts could easily remove the observatory's science instruments and components during on-orbit servicing calls and replace them with more technologically advanced equipment. The agency adopted this approach to protect the telescope against instrument and equipment failures over its 20-year mission.

FAST FACTS

Telescope Statistics

Length: 13.3 m (43.5 ft.)

Diameter: 4.2 m (14 ft.)

Weight: 11,100 kg (24,500 lbs.)

Orbit: 612 km (380 mi.)/28.5 degrees from the equator

Instruments

- Wide Field and Planetary Camera 2 (WFPC2)
- Space Telescope Imaging Spectrograph (STIS)
- Near Infrared Camera and Multi-Object Spectrometer (NICMOS)
- Advanced Camera for Surveys (ACS)

Image Credit: NASA.

You can get images and other information about the Hubble Space Telescope on the World Wide Web. Visit **http://www.stsci.edu/outreach** and follow the links.

Educational activities related to HST can be found at: http://amazing-space.stsci.edu/, or may be obtained by contacting the Office of Public Outreach at the Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218.

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