The Hubble Space Telescope
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 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.