NASA

NASAfacts

An Orbiting Laboratory

This image of the International Space Station and the docked Space Shuttle *Endeavour*, flying at an altitude of approximately 220 miles, was taken by Expedition 28 crew member Paolo Nespoli from the Soyuz TMA-20 following its undocking on May 23, 2011 (USA time).

Clearly visible with the naked eye in the night sky, the expansive International Space Station is a working laboratory orbiting 240 statute miles (386.24 kilometers) above the Earth, traveling at 17,500 mph (32,410 kilometers per hour), and is home to an international crew. It is the most complex scientific and technological endeavor ever undertaken.

As a research outpost, the station is a test bed for future technologies and a research laboratory for new, advanced industrial materials, communications technology, medical research and much more.

On orbit assembly began in 1998 with the launch of Zarya, and the complete station provides crew members with more than 33,000 cubic feet (935 cubic meters) of habitable volume – almost equal to one-and-a-half Boeing 747 jetliners – and weighs 925,000 pounds (419,600 kilograms). It measures 361 feet (110.03 meters) end to end, which is equivalent to a U.S. football field, including the end zones. The station's solar panels exceed the wingspan of a Boeing 777 jetliner and harness enough energy from the sun to provide electrical power to all station components and scientific experiments.

The space station is now complete with its several component parts that include living modules, research modules, robotics elements, and payload elements with the truss.

Living modules now include:

- The Russian-built, U.S.-funded Zarya Module and the Russia-provided Zvezda

Service Module, which contain station living quarters and life-support systems
- Three nodes that increase crew living and working space and provide passageway between modules

Research modules now include:

- The U.S.-built Destiny Laboratory, which expands the station's scientific capabilities with experiment compartments that allow nearly continuous scientific research and provide additional life-support and robotic capabilities
- The Cupola, a small module designed for the observation of operations outside the space station
- The European-built Columbus module and Japanese-built Kibo experiment module, which hold experiment racks, exterior payload platforms and a storage module

Robotics elements comprise:

- The Canadian-built Mobile Servicing System that consists of the Canadarm2, a new-generation robotic arm that gives the station a movable space crane
- The Special Purpose Dexterous Manipulator, or Dextre, a smaller two-armed robot capable of handling the delicate assembly tasks currently handled by astronauts during spacewalks
- The Mobile Base System, a work platform that moves along rails covering the length of the space station and provides lateral mobility for the Canadarm2

Payload elements and the truss:

- The Russian-built Pirs docking compartment, which adds additional spacewalking and docking capabilities to the station
- The U.S.-built Unity connecting module, providing docking ports for several station components
- The U.S.-built Quest airlock, a doorway to space that supports station-based spacewalks

An aerial shot of the station from space.

- The Integrated Truss Structure, which is composed of multiple elements and forms the backbone of the station

Since Expedition 1, which launched Oct. 31, 2000, and docked days later on Nov. 2, the space station has been visited by more than 200 individuals from 15 different countries and has had continuous human occupation. Approximately another 120 crew members will live aboard the station over the next decade.

Space Station Facts

More than 100 space flights will have been conducted on five different types of launch vehicles over the course of the station's construction.

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058

www.nasa.gov

FS-2011-06-011-JSC