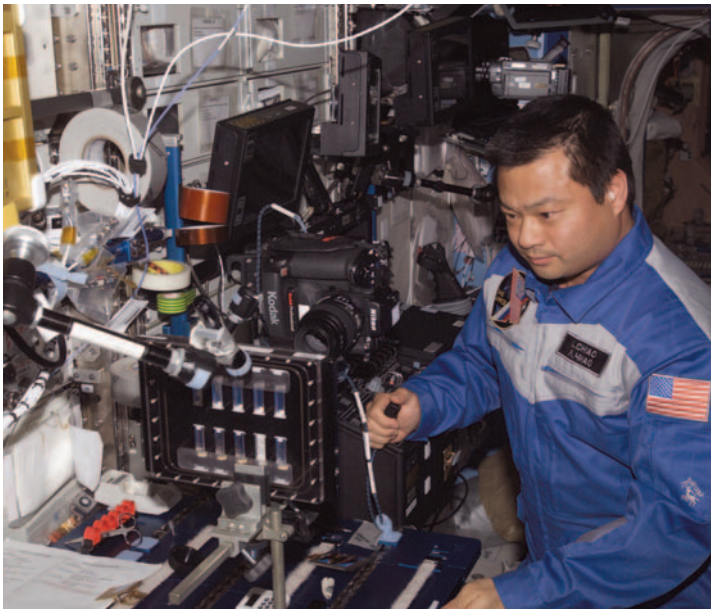
Johnson Space Center

International Space Station

State-of-the-art orbiting laboratory complex

Clearly visible with the naked eye in the night sky, the expansive International Space Station is a working laboratory orbiting 240 miles (390 kilometers) above the Earth and is home to an international crew.

It is the most complex scientific and technological endeavor ever undertaken, involving five space agencies representing 16 nations. Once completed, this new research outpost in space will include contributions from the U.S., Canada, Japan, Russia, Brazil, Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom.



Astronaut Leroy Chiao, Expedition 10 commander and NASA space station science officer, conducts an experiment studying the long-term behavior of colloids – fine particles suspended in a fluid in a microgravity environment, where the effects of sedimentation and convention are removed.

On-orbit assembly began in 1998 with the launch of Zarya, and today the station provides crewmembers with interior living and working space equal to that of a typical three-bedroom home. The station's solar panels exceed the wingspan of a 777 wide-body jet and harness energy from the sun to provide electrical power to all station components and scientific experiments.

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.

The station's on-orbit configuration now includes the Russian-built Zarya Module and the Zvezda Service Module, which contain the station's living quarters and life-support systems; the U.S.-built Unity Connecting Module, providing docking ports for several station components; the

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U.S.-built Destiny Laboratory, which expands the station's scientific capabilities with experiment compartments that allow nearly continuous scientific research and provides additional life support and robotic capabilities; the U.S.-built Quest Airlock, a doorway to space that supports station-based spacewalks; the Canadian-built Canadarm2, a new-generation robotic arm that gives the station a movable space crane; the Russian-built Pirs docking compartment, which adds additional spacewalking and docking capabilities to the station; and truss segments, which serve as the framework for additional station segments. Japanese and European research laboratories are ready for delivery to expand the station's research capabilities even more.

The station's first resident crew, Expedition 1, marked the beginning of a permanent international human presence in space, arriving at the station in a Russian Soyuz capsule in November 2000. Currently, station crews stay on orbit for six months at a time. The International Space Station provides the first laboratory complex where gravity, a fundamental force on Earth, is virtually eliminated for extended periods. This ability to control the variable of gravity in experiments opens up unimaginable research possibilities. With the purer protein crystals that can be grown in space, scientists may be able to develop medicines that target particular disease-causing proteins. Such crystals, previously grown on many space shuttle missions researching cancer, diabetes, emphysema and immune disorders, have already shown promise. New drugs to fight influenza and post-surgery inflammation are already in clinical trials.

The International Space Station, an unprecedented, state-of-the-art, orbiting laboratory complex, continues to expand the boundaries of space research. The unique capabilities of its laboratories will lead to discoveries that will benefit missions further into outer space and people all over the world, now and for the future.

Completing the International Space Station is one of the first steps in the Vision for Space Exploration, a stepping-stone strategy toward new exploration goals. Using the station to study human endurance in space and to test new technologies and techniques, NASA will prepare for the longer journeys to the moon, Mars and beyond.

To learn more about the International Space Station, visit us on the Web at

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