

INTERNATIONAL SPACE STATION 15th ANNIVERSARY Human Habitation

45 Crewed Expeditions...so far

November 2, 2000
Expedition 1:
William Shepherd
Sergei Krikalev
Yuri Gidzenko
First Crew Docking

Space Station educational activities on orbit have reached more than **42 million students** across the globe.

32,333 cubic feet of volume

The **International Space Station** weighs **930,000 pounds** and has the same pressurized volume as a **Boeing 747**, providing more livable room than a conventional **six bedroom house**.

More than **1,200 scientific results publications** have been produced.

There have been more than **180 U.S. and Russian spacewalks**.

The Space Station is an international endeavor of global collaboration, with more than **220 people from 17 countries** visiting the ISS since 2000.

Crews have eaten more than **26,500 meals** since Expedition 1. Approximately **7 tons of supplies** are required to support a crew of three for about **6 months**. Some crew favorites include shrimp cocktail, tortillas, and macaroni and cheese.

22 scientific investigations were conducted during Expedition 1. **191 investigations** will be conducted during Expeditions 45 and 46.

29 research racks, about the size of a refrigerator, enable important research aboard the Space Station. This includes 15 attached external payloads.

More than **1,760 research investigations** from researchers in more than **83 countries** and areas have been conducted to date on the orbiting laboratory.

The **Water Recovery System** reduces crew dependence on cargo resupply of water by **65%** - from **about 1 gallon a day to .34 gallon**. This is just one of many ways the International Space Station serves as a stepping-stone to deeper space exploration.

20 objects with 13 different designs, including a ratchet wrench, have been printed by a **3-D printer** aboard the Space Station.

The first research study was **protein crystal growth**, happening before humans lived there. The study of protein crystals in space is **helping treat diseases and disorders on Earth**, such as Duchenne Muscular Dystrophy.

The Space Station program involves more than **100,000 people** in space agencies and at **500 contractor facilities** across **37 U.S. states and in 16 countries**. That's one sixth the population of Vermont.

The Science Behind Scott Kelly's #YearInSpace

Through research on astronaut Scott Kelly in seven major areas, we will improve our understanding of how the human body reacts to long-duration spaceflight. Testing began one year before his launch, intensified during his 340 days in space, and will continue for a year — or longer — after his return to Earth. The results of this research will help prepare us for future voyages beyond low-Earth orbit.

Visual Impairment

Has Scott's vision been impaired? Fluid shifts in microgravity can put pressure on the optic nerves. These investigations examine ocular health and the body's response to fluid shifts in a microgravity environment.

Human Factors

Will Scott's fine motor skills, which are important to controlling a spacecraft, diminish? These investigations also examine how astronauts interact with their environment aboard the International Space Station.

Microbial

Will the collection of microbes in and on Scott's body change in space? Environmental factors like stress and diet can affect the microbiome, which can — in turn — affect overall health. These investigations examine changes in the microbiome of astronauts during spaceflight.

Functional

Can Scott perform tasks such as opening a spacecraft hatch after landing or walking? These investigations examine the changes in an astronaut's performance of basic tasks and related psychological responses after 12 months in space.

Behavioral Health

Has living in space affected Scott's psychological health? Stressful environments can impair cognitive performance. These investigations measure reaction time, reasoning and mood.

Metabolic

With samples of blood, urine and saliva, we're getting a comprehensive look at Scott's overall health, including his immune system and nutritional status.

Physical Performance

How strong are Scott's bones, muscles and cardiovascular system? These investigations examine exercise capability with a focus on physical performance.

Learn more about every #YearInSpace investigation at:
www.nasa.gov/1ym/research

