

National Aeronautics and
Space Administration



INTRODUCTION

The International Space Station, one of the most ambitious international collaborations ever attempted, is a convergence of science, technology and human innovation that provides humanity a one-of-a-kind proving ground for Artemis as we go forward to the Moon and on to Mars. It is a demonstration platform for new technologies and research laboratory for breakthroughs not possible on Earth, representing the most complex space exploration program ever undertaken.

In the two decades that humans have inhabited the space station, we've used the unique orbiting laboratory to build our understanding of how humans can safely live in microgravity, make groundbreaking advancements in medicine, test technologies that will help us travel farther into space, gain new insights into our home planet and stimulate an emerging low-Earth orbit economy.

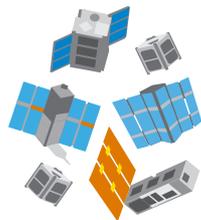
BENEFITS TO HUMANITY

Station activities and research have led to new products to purify air and water in our homes, use of cold plasmas in wound treatment, tracking technology for laser-eye surgery, non-invasive temperature monitoring of babies in hospitals, and advancements in telemedicine.

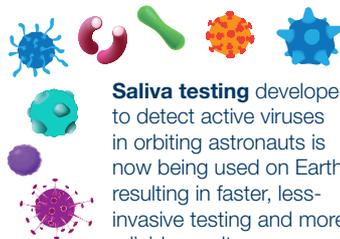
Over 500 microgravity **protein crystal-growth investigations** have been conducted to explore better treatments for diseases such as cancer and muscular dystrophy.



New combustion discoveries like **"cool flames"** may help reduce engine emissions.



More than 200 **small satellites** have been deployed from station since 2013, improving Earth-observation photography, internet access and telecommunication services.



Saliva testing developed to detect active viruses in orbiting astronauts is now being used on Earth, resulting in faster, less-invasive testing and more reliable results.

Data gathered on the space station is used to generate a **unique, publicly available database** used in ecological research and climate modeling.



Astronaut photography supports scientific research, as well as educational and international disaster-response activities. As of January 2020, more than 3 million photos are publicly available.



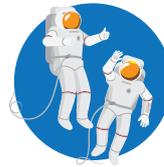
THE INTERNATIONAL SPACE STATION AT A GLANCE



Required a collaborative effort by **15 nations** to construct.



Has had a **continuous human presence** since November 2000.



Has required **227 spacewalks** (and counting) for assembly, maintenance and upgrades.



Measures **357 feet end-to-end** and has a mass of nearly 1 million pounds.

Travels at an average altitude of about **227 nautical miles (420 kilometers)** above Earth.

Earth 227 nautical miles ↓

SPEED LIMIT
17,500
MPH

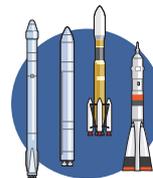
Travels at **17,500 mph**, covering the equivalent distance to the Moon and back in about a day.

Has seen more than **2,800 experiments** conducted so far.



LIVING AND WORKING IN SPACE

Over the past 20 years, the space station has evolved from an orbiting outpost, where 34 investigations were conducted by the first crew, to a capable laboratory with about 300 active investigations during each crew rotation.



Astronauts receive **supplies from uncrewed vehicles** provided by various countries and commercial sources.

An astronaut's usual stay aboard the orbiting laboratory is around **six months**.



A daily **two-hour exercise program** is critical for astronauts to counteract the physical effects of living in microgravity.

Astronauts sleep in **special sleeping bags** secured to the wall of their personal crew quarters.



Astronauts spend their time in space **conducting scientific experiments** and **maintaining the space station**.



International Space Station: nasa.gov/station | Station Science: nasa.gov/iss-science | Spot the Station in the night sky: spotthestation.nasa.gov/

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