



Astronaut

Life as a Scientist and Engineer in Space

By Ruth Owen



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by Ruth Owen

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Just Another Day at Work

The countdown is over. A deafening roar bursts from the base of the Soyuz-FG rocket. As people around the world hold their breath, the rocket soars into the sky on a column of flame.

Blasting away from Earth are Timothy Kopra, Yuri Malenchenko, and Tim Peake. Just three scientists and **engineers** on their way to work!

In a few hours, the men will reach their destination—the International Space Station (ISS). Their training has been long and hard. But it will all be worth it to have the chance to live and work high above Earth in the most extreme **laboratory** ever built!

ISS Expedition 46 crew members Tim Peake (left), Yuri Malenchenko (center), and Timothy Kopra (right) preflight, December 15, 2015.

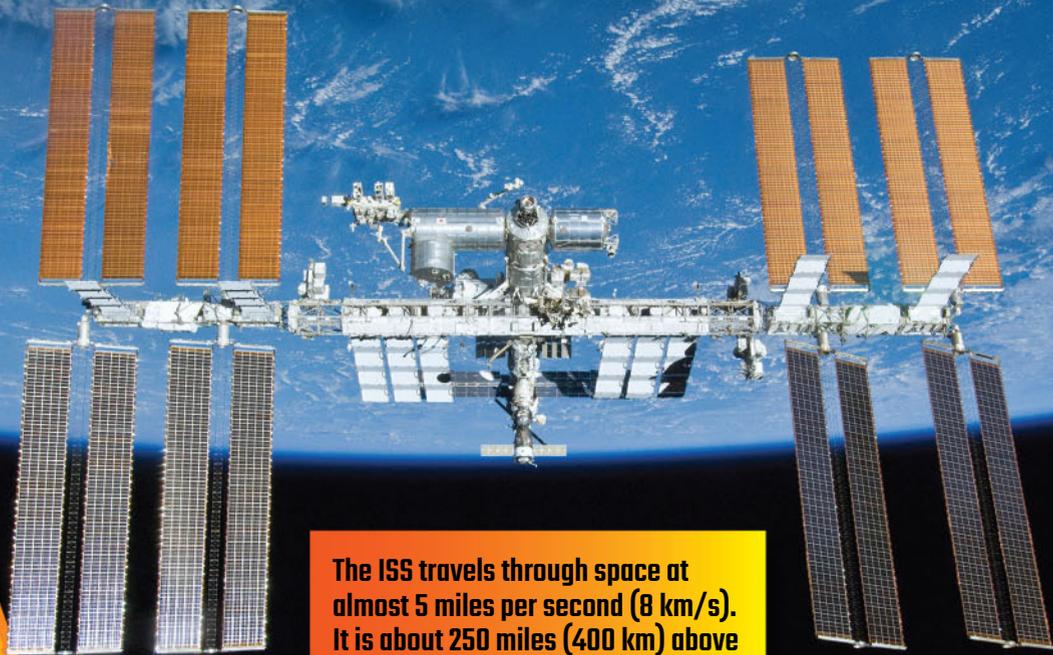


Astronauts are highly skilled men and women. They may be scientists, engineers, pilots—or all three. Astronauts work for space agencies such as NASA (National Aeronautics and Space Administration) and ESA (European Space Agency).

The Soyuz-FG blasts off from the Baikonur Cosmodrome in Kazakhstan.



The International Space Station



The ISS travels through space at almost 5 miles per second (8 km/s). It is about 250 miles (400 km) above Earth's surface.

The International Space Station (ISS) is a workplace and home for up to six people. Aboard this space laboratory, astronauts and **cosmonauts** perform experiments that help us learn more about space travel and even life on Earth.

On a space station, everyday actions, such as getting a drink of water or going to the bathroom, are complex science problems. It has taken thousands of scientists and engineers many years to make life on the ISS possible by developing solutions to these problems.



Astronaut and engineer Karen Nyberg watches Earth from the ISS. Watching their home planet is a favorite activity for the ISS crew.

The ISS **orbits** Earth 16 times in every 24-hour period. During each orbit, it moves into the Sun's light for 45 minutes and then into darkness for 45 minutes. This means the crew experiences 16 sunrises and 16 sunsets every day.

On Earth, **gravity** pulls everything, including us, down toward the ground. Inside the ISS or an orbiting spacecraft, everything experiences zero gravity and astronauts feel weightless.