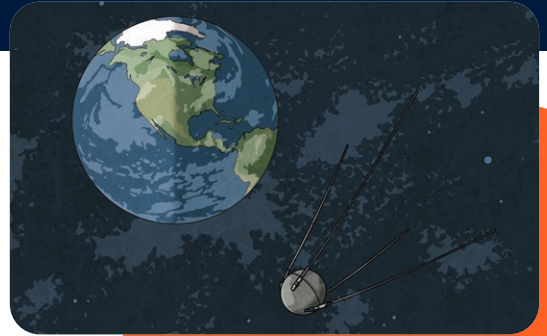


This handout contains information about the **Tech for Space Assembly**. Scan the QR code to download the **Tech for Space Assembly**. Scroll down the page and click on the red **Assemblies** slide tab.



## Technology and Space

Technology is the use of science and knowledge to solve problems or invent useful tools. Technology has changed very quickly and has been developed to help people travel to and learn more about space. Technology developed for space is often useful back on Earth too.



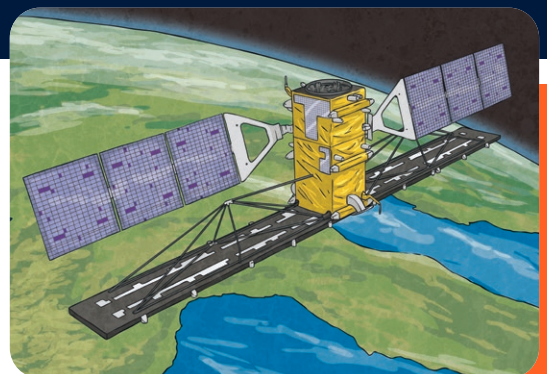
## Technology Used to Travel to Space

Technology allows spacecraft to transport humans into space. It also allows us to transport equipment or technology to study space and travel to other planets. Technology allows rockets to safely land back on Earth. 3D printers are being developed to hopefully print 3D rockets that will use less materials, making them quicker and cheaper to make.

## Careers in Technology for Space Travel

Aerospace engineers design, build and test many different aircraft and satellites. They design and create the technology and machines to help astronauts travel safely into space.

Propulsion engineers design, create and test the engines, machines and fuels needed to launch satellites and spacecraft into orbit.





## Technology Used to Live in Space

When astronauts travel into space they are often up there for weeks or even months at a time. They use lots of different technology to help them to live comfortably in space. Technology allows food to be freeze-dried so that it lasts longer than it normally would. Scientists are working on ways that astronauts can perhaps one day grow their own food in space.

## Technology Used to Stay Safe in Space

Technology helps to keep astronauts safe in space. Technology in spacesuits provides astronauts with oxygen, protects them from extreme temperatures and radiation and contains equipment they can use. Technology is used to keep astronauts healthy too. Astronauts have to be strapped down onto the treadmills or they'd float away.

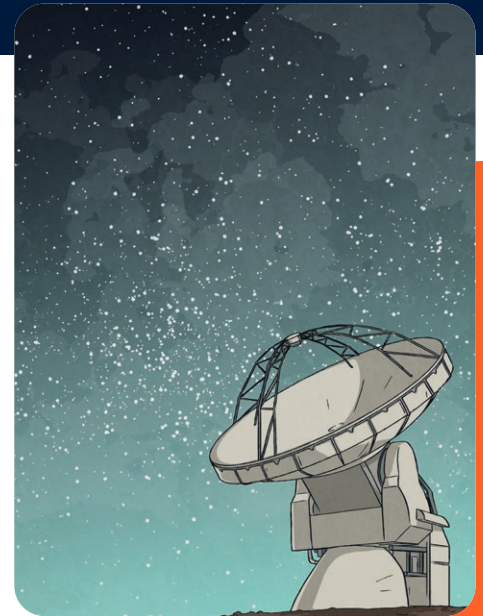


## Careers in Technology for Living in Space

Space medicine researchers study the effect of space travel on the human body both physically and mentally. Materials engineers test different materials to create new products that astronauts could use in space. Space bioscientists study how space travel affects living things and help to develop new technologies to provide astronauts with the food and water they need to live in space.

## Technology Used to Explore Space

Telescopes have been one of the main pieces of technology that have helped us to study space from Earth. Telescope technology is improving allowing astronomers to see deeper into space that will help them learn more about it. Robotic vehicles, called rovers, are designed to move around and explore the surface of a planet or moon to help us to learn more about it. Landers are similar to rovers, but they land in one place on the surface of a planet or moon and take measurements there, they don't move around. There are also orbiters, which orbit the planet or moon, taking photos and measurements. It can take many years to design and test these robots, and then send them into space.

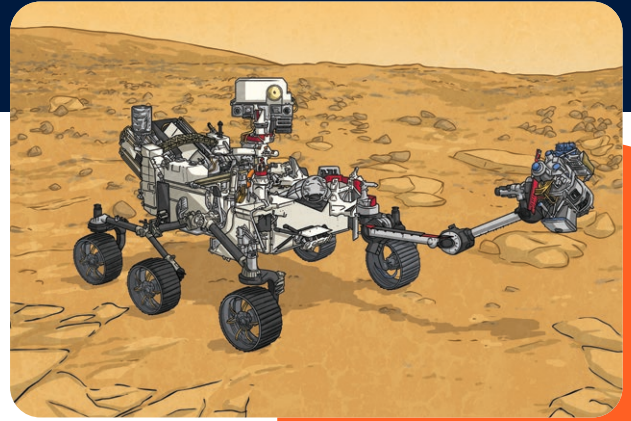


## Technology to Communicate to and from Space

Space missions involve teams of people communicating with each other in space and on Earth. In the past, astronauts couldn't communicate with Earth much, they could only use their radio systems to communicate with mission control. Technology has allowed astronauts, who are just outside the Earth's atmosphere, to have real time conversations with someone back on Earth with a very small delay. However, it takes a much longer time to send and receive communications from places like Mars.

## Careers in Space Exploration and Communication

Space robotics engineers design and build robots that explore and collect information in space. Telecommunications engineers develop technology to help astronauts communicate with Earth which means they will be able to travel further. Planetary geologists study the surface of other moons and planets.



## Try This at Home

Design a new spacesuit for an astronaut. Think about what technology you could include in the spacesuit to help keep them safe in space and make their life easier. Draw your design on paper or use a computer and include details of how your spacesuit will help an astronaut in space.

