



ACTIVITY 3: PEOPLE AND SPACE EXPLORATION

The mighty space rockets of today are the result of thousands of years of invention, experiments, and discovery. Over the past 50 years, hundreds of people have traveled into space and walked on the moon. In coming years, we will expand the human presence to Mars –and then . . . who knows? Find out about an ongoing mission in space and one “peopled” by robots!

The International Space Station (ISS) The ISS is an orbiting research laboratory with crew members conducting experiments in most scientific fields. It is also a testing ground for equipment and systems required for future space missions. It orbits the Earth 16 times each day. At the right time and in the right spot, it’s possible to view the ISS from Earth with the naked eye. Here are some more cool ISS facts:

- On its ten-year anniversary in 2010, the station’s odometer read more than 1.5 billion statute miles (the equivalent of eight round trips to the Sun) logged over the course of 57,361 orbits around the Earth.
- A total of 162 spacewalks have been conducted in support of space station assembly, totaling more than 1,021 hours.
- Including its solar arrays, the space station spans the area of a U.S. football field and weighs more than 860,000 pounds (more than 320 cars), not including visiting vehicles. It has more livable room than a five-bedroom house, and has two bathrooms, a gymnasium and a 360-degree bay window.
- There have been more than 125 launches to the space station since the launch of the first module, Zarya, in November, 1998. More than 162 spacewalks have been conducted from the ISS, totaling more than 1000 hours.

Missions to Mars It’s not yet possible to send *human* geologists (earth scientists) to Mars. So, instead, NASA has sent a series of roving *robot* geologists there. The most recent roving “Robot-in-Residence” is *Curiosity*, part of the Mars Science Laboratory, deployed on Mars since August 6, 2012. It uses landing techniques to steer itself to a specific location on the surface of Mars with much greater precision than has ever been possible on a mission to Mars before.

Curiosity has six wheels and cameras mounted on a mast. It is equipped with a laser that can vaporize a thin layer from the surface of a rock and can then analyze the composition of the rock’s underlying materials. It can collect rock and soil samples and deposit them in on-board test chambers for chemical analysis. *Curiosity* and the Mars Science Laboratory are helping determine whether there are elements on Mars necessary for life, such as nitrogen, phosphorus, sulfur and oxygen, along with other compounds.

SUGGESTED ACTIVITIES

- Experience the thrill of conducting NASA repair work on the International Space Station. Play the Station Spacewalk Game. Please see: http://www.nasa.gov/multimedia/3d_resources/station_spacewalk_game.html
- “Mars for Students” has an amazing set of activities designed to help you learn about Mars and participate in its exploration. Find everything you need, from help with school homework to the Mars Student Imaging Project. Please see: <http://marsprogram.jpl.nasa.gov/classroom/students.html>
- Imagine a NASA mission that takes place 100 years in the future. What would it be? Where would it go? What might it find? Write a “news article” about the latest mission, 100 years from now. Design a logo for this mission.

