

## **Astronaut Training**

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### **Objectives**

Students Will:

- Explore how astronauts are scientists.
- Explore how astronauts are designers.
- Explore how astronauts are explorers.
- Explore how astronauts are engineers.
- Explore why astronauts need to know about other astronauts.
- Explore why astronauts need to be fit.

### **Suggested Grade Level**

1<sup>st</sup>

### **Subject Areas**

Earth Science

### **Timeline**

60 minutes

### **21<sup>st</sup> Century Essential Skills**

- Critical Thinking/Problem solving
- Collaboration and Teamwork
- Communication
- Information Literacy
- Initiative
- Social Skills
- Organizing Concepts
- Predicting Patterns
- Carrying out Investigations

### **Background**

This lesson is structured as stations that students visit in small groups. At each station, students use a skill that astronauts develop when they train for space missions. The students learn about the physical and academic preparation that is needed during astronaut training. The activities help them to understand the process that astronauts go through, to inspire them to develop their own skills, and to prepare them for careers in space and other STEM fields. This lesson also includes an overview of major events in the life of the astronaut Wally Schirra, since our school is located in his hometown (Oradell, New Jersey.)

### **Vocabulary**

Astronaut – a person trained to travel to space

EVA (Extravehicular Activity) – an activity done by an astronaut outside of the spacecraft. Also called a spacewalk.

Engineers – People who design, build and repair things (especially machines, tools and other technology). Engineers apply science and math to solve real-world problems.

Glove box – a container that is sealed off from its surroundings but allows people to move items inside using gloves attached to the sides

Mission patch – an emblem associated with a particular space mission, often a round piece of fabric attached to an astronaut's space suit. The mission patch design is typically suggested by the crew of a particular mission, and might include the names of the crew, the name of the spacecraft, and related images.

### Materials

- Cardboard Box
- Nitrile Gloves
- Duct Tape
- Rocks
- Bowls
- Clear plastic wrap
- Printed Mission Patch Samples
- Paper or Cardstock Circles for Mission Patches
- Colored Pencils
- Scooter
- Ski gloves
- Lego Pieces
- Printed and Dated Pictures of Wally Schirra
- Alphabet Letters

### Lesson

Advance preparation: Make 2 glove boxes by cutting holes in the sides of a cardboard box and duct-taping gloves over the holes. Put bowls and rocks inside and cover the top with clear plastic. Cut out circles for mission patches.

Introduce the lesson by explaining the purpose of astronaut training, and telling the students that they will go through astronaut training activities, just like actual astronauts. Explain the directions for each station, divide the class into 6 small groups, and let the groups rotate through the stations, spending about 5-10 minutes at each one.

1. **Astronauts are Scientists:** Moon rocks: pretend that the students collected rocks on the moon, and we want to keep them very clean. Show them how to use the glove box. Have them sort the rocks into bowls.
2. **Astronauts are Designers:** Make a mission patch: Give students examples of mission patches and blank white circles and regular and colored pencils. Have them draw and color their own mission patches. They should write their name on one side. They can attach them to clothes with a little tape, tape them into their science lab notebooks, or bring them home.
3. **Astronauts are Explorers:** EVA - Extra Vehicular Activity, or spacewalk. Have students pull themselves across a space, sitting on a scooter, pulling on a rope or pushing along the floor, wearing bulky gloves. Ropes can be tied to cabinet handles.

4. **Astronauts are Engineers:** They build something with Lego: a satellite, a rocket ship, a space station, a rover, or any space-related structure. They pretend that it broke or came apart, and they have to repair and rebuild it.
5. **Astronauts Know About Other Astronauts:** Take dated pictures of Wally Schirra and put them in chronological order. Put the letters of his name in order.
6. **Astronauts Need to be Fit:** Fitness station: Students must do jumping jacks and count them and write how many they did on the board or chart paper.

### **Extensions**

- Ask the students to describe how people prepare to be astronauts.
- Read a book about an astronaut, such as *My Journey to the Stars* by Scott Kelly.
- Visit <https://www.discoverspace.org/> for more ideas.