

EDUCATOR'S GUIDE

Who Goes to Space?

Preparation

Overview and Objectives

This lesson is geared toward students in grades 3–8.

Space travel is something that has intrigued humankind for generations, but the opportunity for both astronauts and private citizens to travel to space is fairly recent. This program discusses who has been able to go into space and asks participants to reflect on what an experience as a space traveler may be like.

This lesson includes a [slideshow](#) in which an instructor can lead participants through an exploration of who has been able to go to space so far and what training was needed from these people before they went. The lesson culminates with participants learning more about active NASA astronauts and sharing characteristics that those astronauts may have in common.

Standards

Common Core Anchor Standards

CCSS.ELA-LITERACY.CCRA.R.1

CCSS.ELA-LITERACY.CCRA.R.7

Instructional Modalities

This activity was designed for both synchronous or asynchronous instruction.

For **synchronous instruction**, we recommend a platform that allows both for whole class discussion and for students to interact in small groups.

For **asynchronous adaptations**, we provide suggestions for teachers to provide additional support for the activities and for students to share their work with each other.

Materials

- [Who Goes to Space? Slideshow](#)
- [Who Goes to Space? Worksheets](#) (p. 6 & 7)
- **Pen or Pencil**

Lesson

1. Introductory Activity

- Ask Participants:
 - **Who can travel to space?**
 - **How does someone prepare for space travel?**
- Discuss the responses with the group.

2. Core Activity

- Explain to participants that more than 550 people have been to space, predominantly astronauts sent up by space agencies all around the world.
- Basic requirements to become a NASA astronaut are a bachelor's degree in a STEM field and three years of related professional experience (or 1,000 hours of pilot-in-command time in jet aircraft). Candidates also must pass NASA's astronaut physical examination.
- Between 2001 and 2009, seven private citizens, or space tourists were able to travel to space. A space tourist has not gone up to space since, but several opportunities are opening up for the next generation of space tourists. Ask the following:
 - **Would you ever be interested in traveling to space?**
 - **What would you want to know how to do before you traveled to space?**
- Share [video](#) (17:10- 21:27) of former astronaut Mae Jemison sharing her application process and her job as an astronaut. Also share information about Anousheh Ansari, the first female space tourist, the first person of Iranian descent, and the first Muslim woman to go into space. Before she went to space, she went through six months of training before her space flight.
- This training was similar to astronaut training, which included classroom training, simulator training, zero-g and survival techniques. Astronauts often have two more additional years of training before they are cleared for a space flight.
 - **Has anyone gone on vacation here before? Where did you go?**
 - **How might traveling to space be different from going on vacation on Earth?**

- Have participants virtually explore the [International Space Station](#) and share their observations. Participants can write down their thoughts using Activity 1 on their [worksheets](#).
 - **What would be their favorite part of the International Space Station? Why?**
- Have participants visit [NASA's website](#) and fill out Activity 2 from their [worksheets](#) as they read the biographies of three active NASA astronauts.
- Have participants share information about the astronauts they learned about with a partner
 - **Do the astronauts they chose to learn more about have anything in common? Did anything surprise you?**
- Have participants describe what the active astronauts have in common.
 - **If you wanted to become an astronaut, what are some things we would have to keep in mind?**

Asynchronous Adaptation

Have participants go through the [slideshow](#) on their own. Using Activity 1 of their first [worksheet](#), participants can write down their thoughts on the International Space Station. With Activity 2 of this [worksheet](#), participants can note information about the active astronauts they researched. Have students share what they would bring using Flipgrid or Padlet, sharing their object via photo or video.

Extension Activities

To deepen student engagement with this content, you may choose to add the following activities :

Create an interactive timeline

Use the timeline option in [Padlet](#) to create an interactive timeline highlighting key events in the lives of three active NASA astronauts

Learn More About Astronauts

Have participants watch three [videos](#) of NASA astronauts sharing their stories and ask participants to share what the astronauts have in common or what they may have in common with the astronauts.

International Space Station

Have participants read the descriptions of the [International Space Station](#) modules and nodes. Have them share what surprises them about the space station and what they would add on to the Space Station if they could.

Additional Resources/ References

Space Tourists

The first human in space traveled to space in April 1961. Since then, more than 550 people have been to space, predominantly astronauts sent up by space agencies all around the world. Between 2001 and 2009, that opportunity has opened up for private citizens, or space tourists to travel to space.

During the period from 2001 to 2009, 7 space tourists made 8 space flights aboard a Russian Soyuz spacecraft to the International Space Station through Space Adventures, a private spaceflight company founded in 1998. These individuals were:

- Dennis Tito, April-May 2001
- Mark Shuttleworth, April 2002
- Gregory Olsen, October 2005
- Anousheh Ansari, September 2006
- Charles Simonyi, April 2007 and again in March 2009
- Richard Garriott, October 2008
- Guy Laliberté , September 2009

The publicized price was in the range of US\$20–25 million per trip. Due to the increase in the International Space Station crew size, there has not been an orbital tourist flight since 2009, but that may soon change.

In June 2019, NASA announced that the organization aimed to start allowing private astronauts to travel to and stay on the International Space Station. Several private

companies have also shared their own plans to send private citizens up to the space station and beyond.

The Soyuz capsule on display at the Intrepid Sea, Air & Space Museum carried Gregory Hammond Olsen, the third private citizen to travel to space through Space Adventures.

Various companies such as Space X, Boeing, Virgin Galactic, and Blue Origin, have discussed plans for private suborbital and orbital flight in their own spacecraft, which would allow for space travel without a government agency.

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ACTIVITY 1: A DAY ON THE INTERNATIONAL SPACE STATION

Directions:

Explore the [International Space Station](#) virtually and write in the names of the spots you believe are the most suited for each of these activities. If you're not sure by looking around, read the descriptions of the different modules for more information.

Area	Name of the Module or Node
Where would you go to get the best view?	
Where would you want to take a nap?	
Where would you go to eat a snack?	
Where could you use the restroom?	
Where could you conduct experiments?	
Where could you get some exercise?	
Where could you find any misplaced cargo?	
Where could you go on a space walk?	
Where would you go to read a book?	

Where do you think you would spend the most time on the International Space Station? Why?

ACTIVITY 2: LET'S LEARN ABOUT ACTIVE ASTRONAUTS

Directions: Visit [NASA's website](#) and fill out the graphic organizer below as you learn about active NASA astronauts. Select **three** NASA astronauts out of the list to learn more about.

Astronaut Name	When did they become an astronaut?	What they studied in school	One fun fact

Did the astronauts you chose to learn more about have anything in common? Did anything surprise you?