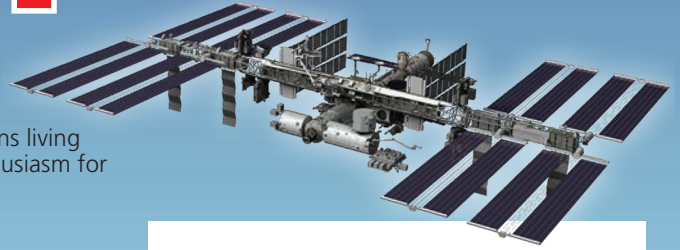


SNOOPY AND NASA

Celebrating the Space Station



Dear Educator,

Gaze at the stars and into the future while honoring the past as you and your students join Snoopy — a seasoned space traveler — in celebrating the 20th anniversary of humans living on the International Space Station! Students will learn about the history of the space station, what life is like for astronauts who live and work in space, and how NASA is planning for future space travel and exploration.

Developed by the curriculum specialists at Young Minds Inspired as part of a unique partnership between NASA and Peanuts Worldwide, these easy-to-implement activities for students in grades 3-6 are standards-based and designed to provide teachers with engaging lessons to complement their language arts and STEM curricula. The lessons can be taught remotely or in the classroom, and each activity includes extension suggestions the whole family can enjoy.

Please share this program with other grade 3-6 teachers at your school. And let us know your opinion of the program by visiting ymiclassroom.com/feedback-snoopy-iss. We look forward to your comments and suggestions.

Sincerely,

Dr. Dominic Kinsley
Editor in Chief
Young Minds Inspired

Program Objectives

- Fuel STEM learning and interest in space
- Raise awareness of the 20th anniversary of humans living on the International Space Station and instill enthusiasm for space exploration and future NASA endeavors
- Reinforce language arts and STEM skills

Target Audience

Students in grades 3-6 and their families

How to Use This Program

Download, photocopy, and distribute the three reproducible activity sheets to all students, or share the PDFs through your school's digital platform if you're connecting with students remotely. Prepare the materials for each activity and preview videos in advance. Have students share their completed sheets with their families so that they can do the activities at the bottom of each sheet together. You can also share the program link with parents to do the activities with their children. Visit ymiclassroom.com/snoopy-iss for standards alignment.

Activity 1

Happy Anniversary, Space Station!

In this activity, students learn fun facts about the space station and celebrate the 20th anniversary of humans living in space.

Materials needed: Pencils, activity sheet, crayons or markers, access to online videos

Tell students that they are going to guess what they will be learning about today. Tell them first that it is celebrating its 20th anniversary of humans living in space in November. Then use the "Fun Facts" at right to give them hints, one at a time, omitting the words "space station" from each statement.

Once someone guesses correctly, tell students that they are going to watch a video featuring Jacob Keaton from NASA's International Space Station Program at youtube.com/watch?v=6MR-qaDaG6w. Pause and discuss the video as you watch it. Which facts about the space station did students find most surprising? Which facts were the most interesting?

Tell students that the people who live on the space station come from all over the world. As of June 2020, 240 people from 19 different countries have lived there, most of them from the United States and Russia. The average amount of time an astronaut spends on the space station is six months. Some have made multiple visits to the space station and have logged more than 365 days — cumulative, not consecutive — working, eating, exercising, and welcoming visitors. Three to seven crew members are on board the space station at all times.

Animals have traveled there, too. Butterflies and spiders lived on the

Fun Facts about the International Space Station!

- ★ The International Space Station is celebrating its 20th anniversary of humans living in space on November 2, 2020.
- ★ The space station circles the Earth approximately 250 miles above the surface.
- ★ As of June 2020, 240 individuals from 19 countries have visited the space station.
- ★ The space station is 357 feet from end to end. That's just three feet shorter than an American football field (including the end zones).
- ★ Up to eight spacecraft can connect to the space station at any time.
- ★ The space station travels about 5 miles per second.
- ★ It takes about 90 minutes for the space station to orbit the Earth.
- ★ In a 24-hour period, the space station orbits Earth 16 times, which means astronauts can see 16 sunrises and sunsets in one day.
- ★ Astronauts on the space station have conducted more than 220 spacewalks... and counting!
- ★ The space station has hosted more than 3,000 scientific investigations from researchers in more than 100 countries.
- ★ Astronauts on the space station must exercise at least two hours per day to prevent bone and muscle loss.



space station so scientists could study how they adapted to life in microgravity. Then there's everyone's favorite beagle — Snoopy! In 2019, a plush Snoopy doll donned a helmet and space suit to float around the space station with astronauts Jessica Meir and Christina Koch. And in the first season of Apple TV+'s animated series *Snoopy in Space*, Snoopy and Woodstock take a trip to the space station and find out what it's like to live in space.

Pass out the activity sheet and have students complete the crossword puzzle.

Answers: Across: 3. two; 4. eight; 5. miles; 7. space walks
Down: 1. countries; 2. football; 5. minutes; 6. space station

Extension Activity: The Peanuts team wants to create a social media post to wish the crew members on the space station a happy 20th anniversary! Help them write a post in 280 characters or less.

Activity 2 Life on the Space Station

*Students will watch a few short videos about the everyday life of crew members on the space station. Then, they will step into Snoopy's space boots and imagine what his life was like when he was aboard the space station in the Apple TV+ series *Snoopy in Space*.*

Materials needed: Pencils, activity sheet, crayons or markers; access to online videos

Ask students to share the things they do in a typical day. For example, what do they do in the morning before school? What is something they do during the day? What about when they go to bed at night? Then ask them to imagine how crew members aboard the International Space Station do everyday activities. How are they the same? How are they different?

Part 1: Show the students the following four short videos and discuss the content as you view them.

- [youtube.com/watch?v=uljNfZbUYu8](https://www.youtube.com/watch?v=uljNfZbUYu8) (washing hair)
- [youtube.com/watch?v=AZxORIV0wss](https://www.youtube.com/watch?v=AZxORIV0wss) (eating)
- [youtube.com/watch?v=_ikouWcXhd0](https://www.youtube.com/watch?v=_ikouWcXhd0) (exercising)
- [youtube.com/watch?v=UyFYgeE32f0](https://www.youtube.com/watch?v=UyFYgeE32f0) (sleeping)

Pass out the activity sheet and have the students fill in the graphic organizer, then use the information to write a paragraph that compares everyday life on the International Space Station to life on Earth.

Part 2: Students learn that astronaut Mike Massimino brought a plush Snoopy doll as a personal item when he traveled to the space station. Ask students to imagine that they are

going to the space station and get to bring one item that would fit into a shoebox. Have students use the back of the activity sheet to write about their item and draw a picture of it on the space station.

Extension Activity: Have students watch the space station tour at [youtube.com/watch?v=A6fCa4ReHX4](https://www.youtube.com/watch?v=A6fCa4ReHX4) and then prompt them to act as "International Space Station travel agents" by creating a mini travel poster or brochure that encourages people to travel to the space station and experience everyday activities in a new way. Which experiences would truly be "out of this world"?

Activity 3 Working in Space

Students learn that an important mission of the International Space Station is to perform scientific experiments in microgravity. They will learn what microgravity is and brainstorm experiments that they would suggest for the space station.

Materials needed: Pencil, paper, crayons or markers

Ask students if they think there is gravity on the International Space Station. Remind them of the definition of gravity — a force that attracts a body toward the center of the Earth, or toward any other physical body having mass. Gravity keeps the Moon in Earth's orbit and the planets orbiting the sun. Gravity is everywhere in space. It is the force that holds the universe together. NASA scientists refer to some areas as having *microgravity* because the force of gravity there, while present, feels very slight compared to the force of gravity on Earth. There is even gravity on the space station — about 90 percent of the gravity we feel on the ground.

So why do astronauts appear to be floating in the International Space Station if they still have gravity? It is because they are actually in "free fall" as they circle the Earth. The space station moves amazingly fast, about 17,500 miles per hour! At this speed, instead of falling to the Earth, the space station travels past the Earth as it falls, causing it to be in orbit. But the crew doesn't feel like they are falling. They experience a floating sensation allowing them to fly around the space station.

Microgravity isn't just fun for astronauts. It's an important part of life on the space station. Crew members spend much of their time on scientific experiments designed to study the effects of microgravity. Tell students they are going to watch a video about microgravity and how it affects scientific experiments on the International



Space Station. Discuss the video as you watch it at [nasa.gov/mission_pages/station/research/station-science-101/why-do-science-in-microgravity/](https://www.nasa.gov/mission_pages/station/research/station-science-101/why-do-science-in-microgravity/).

Pass out the activity sheet and review the directions with the students.

Extension Activity: Divide the students into small groups and have them use what they have learned so far about astronauts and the International Space Station to create a help wanted ad to recruit a mission team to create an experiment related to microgravity. What skills would the candidates need? What tasks do you think they might be required to do?

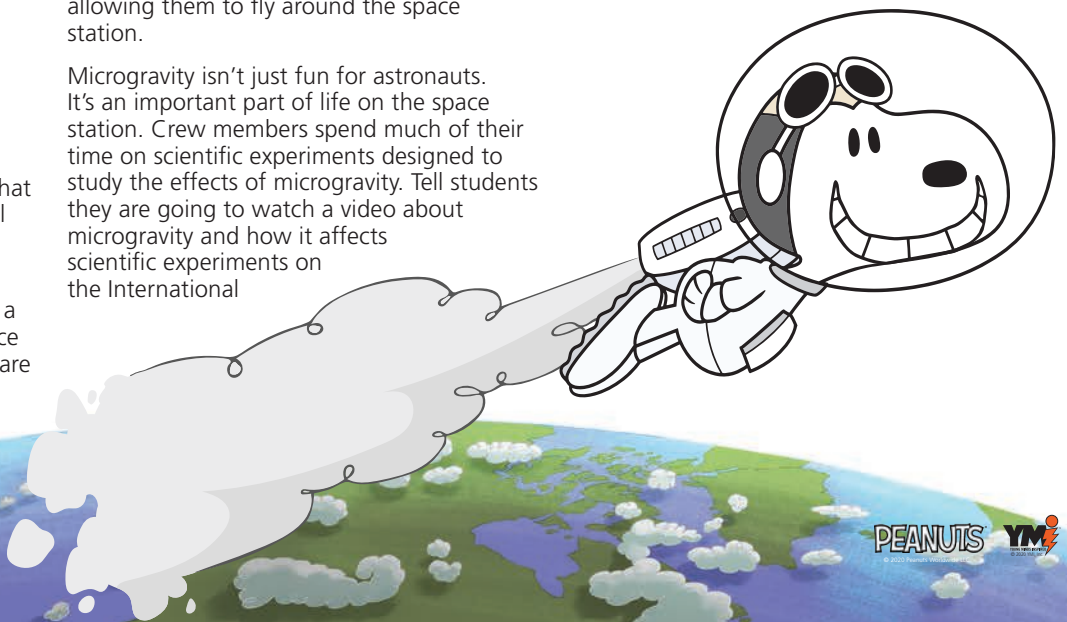
International Space Station Anniversary Events

Tune into [nasa.gov](https://www.nasa.gov) for special anniversary events, including:

- Special messages from the astronauts
- Storytime with the astronauts
- 70th anniversary of Peanuts comic strip (October 2)

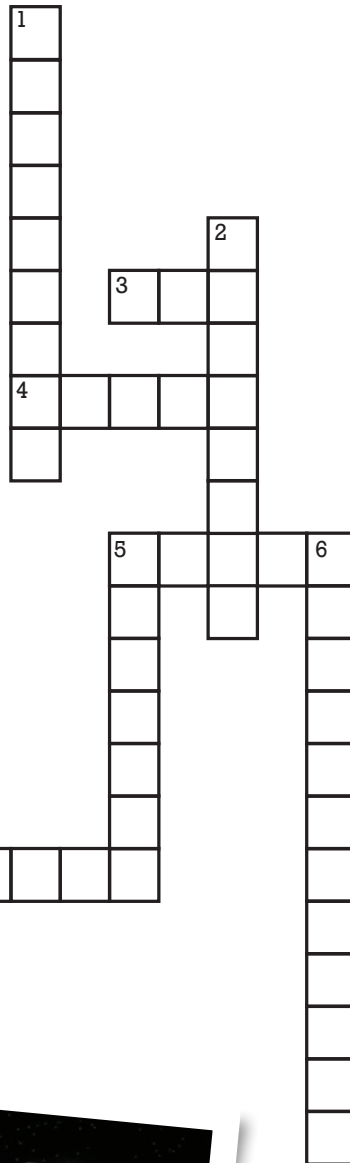
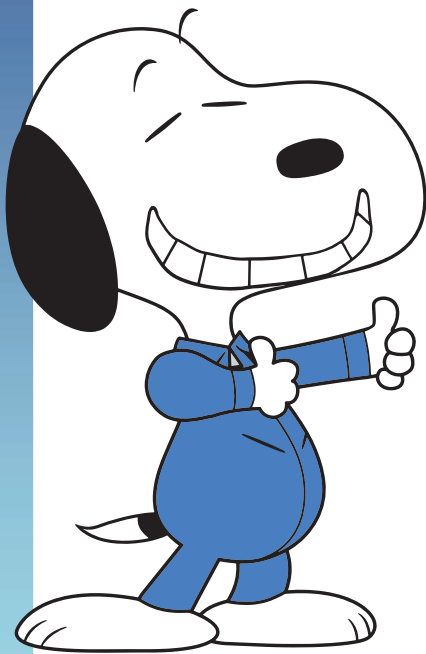
Resources

- apple.co/snoopyinspace
- [nasa.gov/mission_pages/station/main/index.html](https://www.nasa.gov/mission_pages/station/main/index.html)
- [nasa.gov/sites/default/files/atoms/files/iss20_20_continuous_years.pdf](https://www.nasa.gov/sites/default/files/atoms/files/iss20_20_continuous_years.pdf)
- ymiclassroom.com/snoopy-iss



Happy Anniversary, Space Station!

Are you a space expert? Fill in the crossword below to test your knowledge of the International Space Station!



Across

- 3. Astronauts on the space station must work out at least _____ hours per day to prevent bone and muscle loss.
- 4. Up to _____ spacecraft can connect to the space station at any time.
- 5. The International Space Station orbits approximately 250 _____ above the surface of the Earth.
- 7. Astronauts on the International Space Station have conducted more than 220 _____ ...and counting!

Down

- 1. So far, 240 individuals from 19 _____ have visited the International Space Station.
- 2. The space station is just three feet shorter than an American _____ field (including the end zones).
- 5. It takes about 90 _____ for the space station to orbit the Earth.
- 6. The _____ has hosted more than 3,000 scientific investigations from researchers in over 100 countries.



For Families: What a view! The International Space Station has a special spot for Earth-gazing. See it for yourself as Commander Suni Williams gives you a tour at [youtube.com/watch?v=jbZ71DlVeIo](https://www.youtube.com/watch?v=jbZ71DlVeIo). For more space fun, watch *Snoopy in Space* together on Apple TV+, on the Apple TV app, or via apple.co/snoopyinspace.

Life on the Space Station

As you've seen, even though they live in space, the crew members of the space station still have to do many of the same things we do here on Earth every day.



Part 1: Think about the videos you watched about life on the space station. Describe how a person would do the everyday tasks listed below on the space station and on Earth. Then write a paragraph comparing how everyday life is different on the space station than it is on Earth.

	How it's done on Earth	How it's done on the space station
Wash your hair		
Eat		
Exercise		
Sleep		



Part 2: Crew members get to bring some personal items aboard the International Space Station. Astronaut Mike Massimino brought a plush Snoopy doll wearing a space suit when he traveled to the space station because his brother gave it to him when he was a kid. What would you bring? On the back of this paper, write about one personal item you would take along if you were going to live on the space station for six months and draw a picture of it on the space station. Your packing challenge: Your item has to be small enough to fit in a shoebox.



For Families: The space station is a great example of international cooperation. It is an orbiting lab and a home for astronauts from around the globe. As a family, visit nasa.gov/audience/foreducators/stem-on-station/dayinthelife to learn about everyday life on the space station. And watch **Snoopy in Space** on Apple TV+, on the Apple TV app, or via apple.co/snoopyinspace to learn about Snoopy's space station adventure.



Working in Space

When Snoopy visited the International Space Station on the Apple TV+ series *Snoopy in Space*, he was amazed to learn that astronauts spend between 70 and 80 percent of their day performing scientific experiments. Experiments done on Earth are impacted by gravity. Experiments performed on the space station in microgravity let scientists see how smaller, less noticeable forces affect the behavior of things like cell growth and technological processes.



Over the past 20 years, many students just like you have sent experiments to the International Space Station. What experiment would you like to see performed in space? Brainstorm with your group to come up with an experiment and describe it below.

Experiment title: _____

Subject of the experiment: _____ (plant, object, etc.)

Brief description of the experiment: _____

Why did your group choose this experiment? _____

Why should NASA choose your experiment? _____

For Families: Look to the night sky and you just might be able to see the International Space Station with the naked eye! Visit spothestation.nasa.gov to find out when the space station will be traveling by your neighborhood! For more space fun, watch *Snoopy in Space* together on Apple TV+, on the Apple TV app, or via apple.co/snoopyinspace.

