Name: _____ Class: _____

What Is a Spacewalk?

By NASA

In this informational text provided by NASA, the author discusses what spacewalks are and how astronauts stay safe when they leave their spacecraft. As you read, take notes on the steps astronauts take to go on a spacewalk.

Why Do Astronauts Go on Spacewalks?

[1] Astronauts go on spacewalks for many reasons. Spacewalks let astronauts work outside their spacecraft while still in space. Astronauts can do science experiments on a spacewalk. Experiments can be placed on the outside of a spacecraft. This lets scientists learn how being in space affects different things.

Spacewalks also let astronauts test new equipment. They can repair satellites[1] or spacecraft that are in space. By going on spacewalks, astronauts can fix things instead of bringing them back to Earth to fix.

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How Do Astronauts Go on Spacewalks?

When astronauts go on spacewalks, they wear spacesuits to keep themselves safe. Inside spacesuits, astronauts have the oxygen they need to breathe. They have the water they need to drink.

Astronauts put on their spacesuits several hours before a spacewalk. The suits are pressurized. This means that the suits are filled with oxygen.

[5] Once in their suits, astronauts breathe pure oxygen for a few hours. Breathing only oxygen gets rid of all the nitrogen in an astronaut's body. If they didn't get rid of the nitrogen, the astronauts might get gas bubbles in their body when they walked in space. These gas bubbles can cause astronauts to feel pain in their shoulders, elbows, wrists and knees. This pain is called getting "the bends" because it affects the places where the body bends, Scuba divers can also get “the bends.”

1. an object placed in orbit around the Earth, moon, or another planet in space to collect information or communicate

Astronauts are now ready to get out of their spacecraft. They leave the spacecraft through a special door called an airlock. The airlock has two doors. When astronauts are inside the spacecraft, the airlock is airtight so no air can get out. When astronauts get ready to go on a spacewalk, they go through the first door and lock it tight behind them. They can then open the second door without any air getting out of the spacecraft. After a spacewalk, astronauts go back inside through the airlock.

How Do Astronauts Stay Safe During Spacewalks?

When on a spacewalk, astronauts use safety tethers to stay close to their spacecraft. Tethers are like ropes. One end is hooked to the spacewalker. The other end is connected to the vehicle. The safety tethers keep astronauts from floating away into space. Astronauts also use tethers to keep tools from floating away. They tether their tools to their spacesuits.

Another way astronauts stay safe during spacewalks is by wearing a SAFER. SAFER stands for Simplified Aid for EVA Rescue. SAFER is worn like a backpack. It uses small jet thrusters to let an astronaut move around in space. If an astronaut were to become untethered and float away, SAFER would help him or her fly back to the spacecraft. Astronauts control safer with a small joystick, like on a video game.

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: What does the word "thrusters" mean as it is used in paragraph 8 of the passage?
    A. ropes that connect
    B. machines that power
    C. spacesuits that protect
    D. bags that hold tools

2. PART B: Which details from the passage helps the reader understand the meaning of "thrusters"?
    A. "hooked to the spacewalker." (Paragraph 7)
    B. "is worn like a backpack." (Paragraph 8)
    C. "fly back to the spacecraft." (Paragraph 8)
    D. "with a small joystick" (Paragraph 8)

3. Why are two doors needed to create an airlock on a spacecraft?
    A. to make it safe for astronauts to enter and exit the spacecraft on Earth
    B. to let the astronauts do scientific experiments to see how air in space affects living things
    C. to allow astronauts to go into space without letting oxygen out of the spacecraft
    D. to provide a place where the astronauts can connect their ropes to a spacecraft so they do not float away

4. PART A: What is the main idea of the passage, "What Is a Spacewalk?"
    A. Astronauts wear spacesuits that allow them to breathe and move in space.
    B. Astronauts need special machines to study outer space.
    C. Astronauts go on spacewalks to do important experiments.
    D. Astronauts have special tools to stay safe and work in space.

5. PART B: Which two details from the passage support the answer to Part A?
    A. "Astronauts go on spacewalks for many reasons." (Paragraph 1)
    B. "This lets scientists learn how being in space affects different things." (Paragraph 1)
    C. "They can repair satellites or spacecraft that are in space." (Paragraph 2)
    D. "Once in their suits, astronauts breathe pure oxygen for a few hours." (Paragraph 5)
    E. "This pain is called getting 'the bends' because it affects the places where the body bends." (Paragraph 5)
    F. "When on a spacewalk, astronauts use safety tether to stay close to their spacecraft." (Paragraph 7)

6. PART A: What is one kind of important work that astronauts do when they are on a spacewalk?

    A. Astronauts fly through space to explore during spacewalks.
    B. Astronauts hook tools onto their spacecraft during spacewalks.
    C. Astronauts can make repairs to objects during spacewalks.
    D. Astronauts do scientific tests on their bodies during spacewalks.

7. PART B: Which detail from the passage supports the answer to Part A?

    A. “let scientists learn how being in space affects different things.” (Paragraph 1)
    B. “fix things instead of bringing them back to Earth to fix.” (Paragraph 2)
    C. “can cause astronauts to feel pain in their shoulders, elbows, wrists and knees.” (Paragraph 5)
    D. “to let an astronaut move around in space.” (Paragraph 8)

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. What are some character traits that astronauts would need to have? Would you ever want to go on a spacewalk? Why or why not?

2. Spacewalks also allow astronauts to fix things in space rather than returning to Earth. How could this help with astronauts' missions in space? In the context of the text, how do spacewalks help astronauts learn more about space?