

# Continue Your Exploration

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Check out the path below or go online to choose one of the other paths shown.

## Growing Plants in Space

- Feeding the World Using Less Water
- Hands-On Labs 🧤
- Propose Your Own Path

Go online to choose one of these other paths.

The International Space Station is a research laboratory that travels at a speed of 8 kilometers per second and orbits Earth every 90 minutes. Solar panels provide power to the station, and life support systems supply oxygen and remove unwanted gases from the enclosed space. The water supply is supplemented by capturing and recycling the water vapors that enter the cabin when the crew members exhale and sweat! The crew members are researching ways to grow food on the space station in the hope that they will be able to have fresh food available for extended periods of time in space.



An astronaut harvests red romaine lettuce. These plants were grown from seed in the station's plant growth chamber.

## Continue Your Exploration

1. The force of gravity is very weak on the space station, a condition referred to as microgravity. How might microgravity affect the growth of plants on the space station? Select all that apply.
  - A. The length and shape of the roots and stems of the plants grown in space might be different than the same plants grown on Earth.
  - B. The plant may not be able to absorb and transport water and nutrients in microgravity.
  - C. The plant would not be able to respond to light in microgravity.
  - D. The growth of the plant would not be affected by microgravity.
2. One of the biggest challenges of long-term space travel is having a sufficient supply of fresh water. Water must be recycled and used sparingly to ensure that the crew will have enough water to drink and to bathe. What types of plants from Earth would be good candidates for food plants for the crew of the space station? Select all that apply.
  - A. plants from dense areas of vegetation that are adapted to crowded conditions
  - B. plants from dry areas that are adapted to drought conditions
  - C. plants from shady areas that are adapted to low light conditions
  - D. plants from coastal areas that are adapted to saltwater conditions
3. Do you think the plants on the space station are able to conduct photosynthesis? Explain why or why not.

4. **Collaborate** Research plant growth in space. You may also find out more about the space garden on the International Space Station. Gather information about the types of questions researchers are asking about growing plants in space and the research being conducted to answer these questions. Develop a multimedia presentation or informational brochure that communicates your findings.