DCPS: 6th Grade Science

Advisory 1, Units 1-3, Lesson 4
Space Science

Summary

- In this lesson, students will read "Mission to Mars" (pp. 42-49), and "Are We Alone?" (pp. 50-55) to learn how scientists are using research and technology to find places on other planets that will support life.

Science Background

In order for life as we know it to exist, liquid water must be present. Knowing this, scientists are using telescopes and other instruments to search for water beyond Earth.

They have had some success. In 1989, NASA's Galileo mission detected hints of water beneath the surface of Europa, Jupiter's fourth-largest moon. Comets contain frozen water. And there is geologic evidence that water evaporated from the surface of Mars long ago, too.

If water is found, the next question is what type of life could it support? To investigate this, scientists are exploring the most-extreme environments on Earth. This includes frozen valleys of Antarctica and the depths of the Mariana Trench.

Beyond that is the question of whether or not these environments could support human life. One place of particular interest in that area is Mars.

The atmosphere on Mars is cold and thin. Liquid water cannot exist at the surface for any length of time. Despite that, people want to live on Mars, and scientists are working to make it possible. If they succeed, the first settlers could reach Mars as early as the 2030s. And if all goes as envisioned, that first settlement on Mars could eventually be home to a self-sustaining colony capable of supporting up to a million people.

ENGAGE

Encourage students to flip through the articles and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they already know about the possibility of life on other planets.

EXPLORE

Instruct students to examine the image on pages 42-43 of their Readers. **Ask:** *How do you know this isn't an actual photo of an astronaut on Mars?* (Nobody has ever traveled to Mars.) Brainstorm ideas about what it might be like to be an astronaut on Mars.

EXPLAIN

Point out to students that living things need air, food, and water to survive. **Ask:** *If that's the case, why do scientists think finding liquid water is the key to finding life beyond Earth?* (At its most basic, life is a series of chemical reactions that take place in water. Without it, they can't occur.) *How have scientists been searching for liquid water beyond Earth?* (They have used telescopes, space probes, and rovers.) Have students turn and talk to discuss what scientists have discovered so far. Then remind students that scientists are planning to send people to Mars. Encourage students to turn and talk as they discuss the types of technology that would be needed for people to get to and survive on Mars.

ELABORATE

Encourage students to click, zoom, and explore the planet Mars with National Geographic's *Mars Globe* (*www.nationalgeographic.org/education/mars*). Each point on the globe offers one or more questions related to the geology or exobiology of Mars at that location. Download and use the accompanying Educator's Guide, which contains activities designed to help students research questions and explore all 22 features on the surface of the red planet.

EVALUATE

Have students complete the **Content Assessment** for this lesson. Encourage them to share and compare their results in small groups.

Name _____ Date _____

CONTENT ASSESSMENT: Space Science, Lesson 4

Identify two problems people face if they want to live on Mars. Write a potential solution for each.

Problem 1:	Solution 1:
Problem 2:	Solution 2:

Do you think scientists will ever find life beyond Earth? Why or why not? Write about it. Use facts from the article to support your opinion.

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