

ADVISORY 1, UNITS 1-3, LESSON 2 SPACE SCIENCE

Summary

- In this lesson, students will read "A New Look at the Solar System" (pp. 16-21), and "Just Like Earth" (pp. 22-29) to recognize similarities and differences among planets and other objects in our solar system.

Science Background

Our solar system contains the sun and everything that travels around it. This includes eight planets, their natural satellites (moons), dwarf planets, asteroids, comets, and meteoroids. All of these objects are found in three solar system zones.

The first zone, called the Terrestrial Zone, contains the four inner planets—Mercury, Venus, Earth, and Mars. Each planet of these planets has a solid, rocky surface featuring mountains, valleys, plateaus, and volcanoes.

The next zone, the Jovian Zone, contains the four outer planets—Jupiter, Saturn, Uranus, and Neptune. The surface of these gas giants is covered with billowing clouds, lightning, and super-size storms.

The third zone, called the Kuiper Belt Zone, lies beyond the planets. It contains many small bodies made of frozen gas and water. The dwarf planet Pluto is located here, too.

Each planet and moon has its own unique atmosphere, chemistry, and geologic history. People can use different Earth- and space-based technologies—or compare other places with Earth—to learn more about them.

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 planets.

EXPLORE

Instruct students to examine the illustration on pages 16-17 of their Readers. **Ask:** *What does this illustration show?* (the planets in our solar system) *How are all of the planets alike?* (Possible responses: They're round; They're in space.) Brainstorm a list of ways the planets are different.

EXPLAIN

Remind students that scientists often use what they know about Earth to learn about other objects in the solar system. **Ask:** *How is the name of the inner zone of the solar system an example of this?* (It is called the Terrestrial Zone. *Terra* is Latin for Earth. Planets in this zone are all Earth-like in their composition.) Have students turn and talk as they discuss reasons why making comparisons with Earth is a good way to learn about other planets. Then have students review the articles to compare and contrast Earth and Mars. (Same: both have seasons and landforms including volcanoes, mountains, and deltas; Different: Mars is half as big, 38 percent less massive, has less gravity, and is colder and drier.) **Ask:** *Which Earth-like landform on Mars tells scientists that water once gushed on Mars? (deltas) Why?* (On Earth, rivers can form deltas.) Have students turn and talk as they discuss other Earth-like comparisons scientists have made.

ELABORATE

Invite students to compare weather on Earth and on other planets in our solar system as they complete the National Geographic activity "Extreme Weather on Other Planets" (www.nationalgeographic.org/activity/extreme-weather-on-other-planets/).

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 2

Record one similarity and one difference between each planet and Earth.

Planet	Similarity	Difference
Mercury		
Venus		
Mars		
Jupiter		
Saturn		
Uranus		
Neptune		

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