DCPS: 6th Grade Science

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

Summary

- In this lesson, students will read "Moon Madness" (pp. 30-35), and "Space Rocks" (pp. 36-41) to examine characteristics of moons and asteroids and learn how they are both impacted by the force of gravity.

Science Background

Moons and asteroids are important members of our solar system. A moon is a body that orbits a planet or asteroid. An asteroid is a relatively small, inactive rocky body that orbits the sun. The force of gravity holds them in place.

Many moons formed at the same time as the objects they orbit. Gravity pulled bits of dust and gas together into bodies of different sizes. The smaller clumps formed moons.

Some moons are the results of collisions. Earth's moon, for example, is thought to have formed when an object as big as the planet Mars crashed into Earth long ago. And other moons are former asteroids that came so close to a larger object that they became trapped by that object's stronger pull of gravity.

Although most moons are made of rock, moons are actually quite diverse. For example, Jupiter has one moon, Io, that is covered with giant volcanoes and another, Europa, that hides a liquid ocean beneath its white, icy surface. The barren surface of Earth's moon is scarred with craters that formed when other large objects struck the moon's surface long ago.

The possibility of objects colliding with each other in space is quite real. And when it happens, the results can be devastating. In the case of asteroids, it is something that scientists are trying to prevent. Astronomers use radar to track Near-Earth Asteroids (NEAs) so they can identify potential threats.

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 moons and asteroids.

EXPLORE

Instruct students to examine the photo and text on pages 30-31 of their Readers. **Ask:** *Where was this photo taken?* (on the moon) *How do you know?* (The caption tells you.) The photo shows an astronaut on the moon.) Talk about what it would be like to be on the surface of the moon.

EXPLAIN

Instruct students to review the definitions of *moon* and *asteroid* in the Wordwise features on pages 35 and 41 of their Readers. **Ask:** *What is one key difference between a moon and an asteroid?* (What they orbit: A moon orbits a planet or asteroid, but an asteroid orbits the sun.) Remind students that gravity is the force that keeps moons and asteroids in orbit. Have students turn and talk as they review the articles for more examples of how gravity can impact moons and asteroids in space. (If a moon is too small, it's gravity may be too weak to squeeze it into a sphere. If an asteroid gets too close to a planet, the planet's gravity can cause the asteroid to slingshot onto a different course.) Challenge students to explain how gravity can turn an asteroid into a moon. (If an asteroid passes too close and gets captured by a large planet's gravity, it will then orbit that planet. This makes it a moon.)

ELABORATE

Invite students to play National Geographic's "Challenge: Asteroids!" (*www.nationalgeographic.org/game/challenge-asteroids/*). Students will complete three mission in the game. They will also learn about exciting careers in engineering, focused on the area of space exploration and asteroids.

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 3

Explain how gravity impacts each combination of space objects.

Moons and Planets	
Asteroids and Planets	
Asteroids and Moons	

Record five additional facts you learned about moons and asteroids.

Moons	Asteroids
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.