

Simplified 5E Lesson Template for 3-D Science
Gather, Reason, and Communicate within a 5E Lesson Template
Instructional Alignment to Three-Dimensional Student Performances in Science

Student Science Performance	
Lesson Developers: Denver Smith	
Grade: 7	Timeline: Gravity 7.1.5
Strand: 7.1	
Performance Expectations from the SEEd Standards Engage in argument from evidence to support the claim that gravitational interactions within a system are attractive and dependent upon the masses of interacting objects.	
Lesson Performance Expectations Students will observe how astronauts are able to bounce high and far on the moon. We will explore why gravity is different on the moon than on the earth. Worksheet Link	
Conceptual Models Essential to Performances Students will understand that gravity is an interaction between two objects' masses	

Science Essentials	
List the 3-D Elements used for this lesson	Aligned Performance Expectations
Science/Engineering Practices	Asking questions / defining problems Analyzing / interpreting data
Crosscutting Concepts	Scale, proportion, quantity Patterns Stability / change
Disciplinary Core Ideas	Physical Science

5E Teaching and Learning Sequence

<i>Phase</i>	<i>Activities</i>
Engage	Phenomenon: How far (or high) can you jump? Gathering: Using measuring tape (or yardsticks), have students measure their standing long jump (or standing high jump). Reasoning: What could you do to improve your length (or height)? Communicating: Discuss as a class what things you could do or what things you could change to jump farther (or higher). Assessment:
Explore	Phenomenon: Watch video of astronauts jumping on the moon. https://www.youtube.com/watch?v=HKdwcLytloU https://www.youtube.com/watch?v=16D0hmLt-S0 Gathering: Why are the astronauts able to jump higher and farther? What is different about the moon? (Note: Keep in mind-- the astronauts also are carrying and extra several hundred pounds with the suit and backpack) Reasoning: Gravity is different on the moon because the moon is smaller Assessment:
Explain	Reasoning: How does mass relate to gravity? What would gravity be like on Jupiter? Or Pluto? Or the Sun? https://www.exploratorium.edu/ronh/weight/ This website will calculate weight on all the different planets and other celestial objects! Communicating: Assessment:
Elaborate	Gathering: Which planet is your weight most similar to on Earth? (Saturn) Saturn is much bigger than Earth in size—how come gravity is similar? (Students should discover that even though Saturn is so big, its density is very small.) Reasoning: The more mass, the greater the gravity. Communicating: Students should discuss how mass and gravity relate to each other. Assessment:
Evaluate	Reasoning: Communicating: Assessment:

