Grade Level
4
Morning Message

A Weigh on the Moon

Science Content:
Solar system, gravity

FRAMEWORK

Disciplinary Core Ideas:
Earth and Space Sciences—Earth's place in the universe

Science & Engineering Practices:
Analyzing and interpreting data; using mathematics and computational thinking

Crosscutting Concepts:
Cause and effect; scale, proportion, and quantity; systems and system models

Materials Needed:
Calculators (optional)

Vocabulary:
Gravity

How to do it:

1 Display a message like the following.

Good Morning, Space Explorers!

Did you know that gravity is stronger on Earth than it is on the moon? That means things weigh less on the moon! Here are some objects and their weights on the Earth and on the moon. See if you can figure out the pattern.

Item	Weight on Earth	Weight on the Moon
Bookcase	42 lbs.	7 lbs.
Pumpkin (large)	24 lbs.	4 lbs.
Bowling ball	12 lbs.	2 lbs.
Gallon of milk	8 lbs.	1.3 lbs.

2 Invite a few students each to read one sentence of the message.

3 Ask the class: "What did you notice about the weights on Earth and the weights on the moon?"

4 If students do not see the pattern, prompt them: "What do we get if we divide the bookcase's weight on Earth by its weight on the moon?"

5 Explain that the weights are less on the moon because gravity is weaker there—it's about one-sixth the strength of Earth's gravity.

6 As time allows, have students discuss with a partner some other things that might weigh only a pound or two on the moon.

EXTENDING THE SCIENCE LEARNING AFTER MORNING MEETING

- Invite students to weigh actual objects and figure out their weights on the moon.
- Adapt the message to figure out weights on various planets.