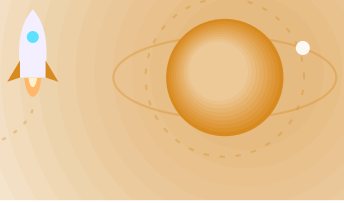
LESSON M-04 · MIDDLE SCHOOL BRIDGE LESSONS (6–8)

Energy Conservation

MIDDLE SCHOOL (6–8)



Name _____ Date _____ Class / Period _____

Energy never disappears

A moving thing has moving energy, and a high thing has height energy. Scientists add them up. When nothing pushes and nothing rubs, energy can change from one kind to the other, but the total stays the same.

Mission goal: watch a coasting satellite and see what happens to its energy.

1 LOOK

OBSERVE BEFORE YOU TOUCH A CONTROL

Does the total change?

- Our satellite flies a stretched, oval orbit around Terra, between _____ km and _____ km above the ground. Its engine is off and there is no air to slow it down.
- Energy is measured in megajoules for every kilogram (MJ/kg). The live readout will show the moving energy first and the height energy second.

Write the numbers shown in the sim in the blanks above, then record what you notice:

2 PREDICT

COMMIT TO A HYPOTHESIS FIRST

Prediction 1. The engine is off and there is no air. As the satellite coasts along its orbit, what happens to its total energy (moving energy plus height energy)?

Hint: Moving energy grows when something goes faster. Height energy grows when something goes higher.

□ It slowly goes down

□ It stays the same

□ It slowly goes up

Because...

3 EXPERIMENT

CHANGE ONE VARIABLE AT A TIME

Step 1. Just watch! Keep your eyes on the Speed, Height and energy numbers for 30 seconds. Do not press anything.

Trial	What I changed	What I measured / saw	Matched my prediction?

1			Yes · No · Partly
2			Yes · No · Partly
3			Yes · No · Partly

4 EXPLAIN

CLAIM · EVIDENCE · REASONING

Claim — What did you find out? (answer the mission goal in one sentence)

Evidence — Which numbers or observations from the sim support your claim?

Reasoning — Which science idea connects your evidence to your claim?

Self-check: □ I made a prediction before experimenting □ I used numbers from the sim □ I explained *why*, not just *what*