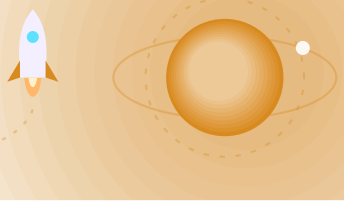
LESSON M-02 · MIDDLE SCHOOL BRIDGE LESSONS (6-8)

Mass vs Weight

MIDDLE SCHOOL (6-8)



Name _____ Date _____ Class / Period _____

Mass or weight?

Mass is how much stuff something is made of. Weight is how hard a world pulls on that stuff. They are not the same thing! Your mass is the same everywhere, but your weight changes from world to world.

Mission goal: find out what a capsule weighs on the Moon.

Standards practiced: MS-PS2-4 · Words to know: mass, weight, gravity, newtons

1 LOOK

OBSERVE BEFORE YOU TOUCH A CONTROL

The capsule on the Moon

- Our capsule has a mass of _____ kg. That number never changes.
- Weight = mass × the pull of the world. Earth's pull is _____ and the Moon's pull is _____ (a bigger number is a stronger pull). On Earth this capsule would weigh _____ N.

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. How much will this capsule weigh when it sits on the Moon? Mark the range you expect.

Hint: Weight is a force, so it is measured in newtons (N). Mass stays the same on every world, but weight changes with the pull of the world. Aim for a band about 20,000 N wide.

My prediction (circle or fill in): _____ to _____

Because...

3 EXPERIMENT

CHANGE ONE VARIABLE AT A TIME

Step 1. Just watch! The capsule is resting on the Moon, and the scale under it measures its weight. Keep your eyes on the Scale reads number for 5 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*