

Forces Under Review

Use observations and evidence to evaluate scientific claims.

S8P5 "Obtain, evaluate, and communicate information about gravity, electricity, and magnetism as major forces acting in nature."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each observed result, circle each claim or conclusion, and write G, E, or M beside each sentence about gravity, electricity, or magnetism. These marks help you judge whether each claim is supported by evidence.

A Team Tests Forces

- ① At the school science fair, Maya's team tested three forces with simple, repeatable observations. First, they dropped the same steel ball from the same height three times. Each time, gravity pulled the ball toward Earth and it landed on the floor. The team recorded the drop height and used a timer, although the timer was not needed to show the direction of the pull. Repeating a test helps scientists decide whether an observation is dependable or not.
- ② Next, the students built a closed circuit with a battery, wires, a switch, and a small bulb. When the switch was closed, the bulb lit. The result supported their claim that a complete conducting path lets electric current flow from the battery through the circuit and back to it. When they opened the switch, the bulb went dark. This comparison was stronger evidence than one trial because only the switch position changed while the other parts stayed the same.
- ③ Finally, the team held a magnet near paper clips without touching them. The clips moved toward the magnet, so the students had evidence that magnetic forces can act at a distance. They did not claim that every metal is magnetic, because aluminum foil did not move in their test. In their report, the team separated observations from conclusions and named the conditions they tested. Clear communication lets another group evaluate the evidence and repeat the investigation.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What observation supports the team’s claim about gravity?

2 Why was the circuit comparison stronger evidence than a single trial?

3 What claim about metals did the team avoid making, and what evidence led them to avoid it?

4 Name two parts of the team’s report that would help another group evaluate and repeat the investigation.

3 YOUR TURN _____ Your own words

Choose gravity, electricity, or magnetism. In four sentences, describe a safe test, state one observation, make a claim supported by that observation, and name one condition you would keep the same so another group could evaluate the test.

PART 1 • READ AND MARK

Underline each observed result, circle each claim or conclusion, and write G, E, or M beside each sentence about gravity, electricity, or magnetism. These marks help you judge whether each claim is supported by evidence. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What observation supports the team's claim about gravity?	The same steel ball was dropped from the same height three times, and each time it moved toward Earth and landed on the floor.
2	Why was the circuit comparison stronger evidence than a single trial?	The switch position was the only part that changed, while the other parts of the circuit stayed the same.
3	What claim about metals did the team avoid making, and what evidence led them to avoid it?	They did not claim that every metal is magnetic. Aluminum foil did not move near the magnet in their test.
4	Name two parts of the team's report that would help another group evaluate and repeat the investigation.	The report separated observations from conclusions and named the conditions the team tested.

PART 3 • YOUR TURN (SAMPLE ANSWER)

I tested gravity by dropping a rubber ball from one meter onto a clear floor three times. In all three trials, the ball moved downward and hit the floor. This observation supports the claim that gravity pulls the ball toward Earth. I kept the release height the same so another group could evaluate and repeat the test.

Accept equivalent evidence-based answers that accurately distinguish an observation from a claim or conclusion. For Part 3, accept any safe, scientifically accurate test that includes all four required parts.