

Bulb Test Detectives

Use evidence to evaluate a fair electricity investigation.

S5P2 "Obtain, evaluate, and communicate information to investigate electricity."

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the class's conclusion, circle each result in the data table, and number the fair-test detail 1 and the limit 2 so you can evaluate the investigation.

Which Materials Complete a Circuit?

- 1 To investigate which materials let electric current move, Maya built a simple circuit with one D-cell battery, two wires, and a small flashlight bulb. She left a gap between the wire ends. For each test, she placed one material across the gap. A glowing bulb showed that the circuit was complete.
- 2 She tested each material three times. Maya kept the same battery, bulb, wires, and test method each time. Changing only the material made the comparison fair. Her class recorded how many trials lit the bulb. The results are evidence, but they do not explain why a material conducts.

CIRCUIT TEST RESULTS

Material tested	Trials with bulb lit, out of 3
Aluminum foil	3
Steel paper clip	3
Wood stick	0
Rubber band	0

- 3 Maya concluded that materials that lit the bulb in all three trials allowed current to move through the circuit. The wood stick did not light the bulb, so it did not complete this circuit. Before sharing the conclusion, the class noted one limit: they used only one piece of each material. Another sample or more trials would strengthen their claim.

2 ANSWER WITH EVIDENCE Use the passage

1 What question was Maya's class investigating?

2 Name two things Maya kept the same. Why did keeping them the same make the test fair?

3 What conclusion about aluminum foil is supported by the data table? Include the data that supports your answer.

4 What limit did the class notice, and what change could make its claim stronger?

3 YOUR TURN Your own words

Write exactly 4 sentences to plan a fair test of three new materials in a low-voltage circuit supplied by your teacher. Include a test question, the three materials, what you will keep the same, a prediction, and the evidence you will record.

PART 1 • READ AND MARK

Underline the class's conclusion, circle each result in the data table, and number the fair-test detail 1 and the limit 2 so you can evaluate the investigation. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What question was Maya's class investigating?	They were investigating which materials let electric current move, or complete the circuit.
2	Name two things Maya kept the same. Why did keeping them the same make the test fair?	She kept the battery, bulb, wires, and test method the same. This made the comparison fair because only the material changed.
3	What conclusion about aluminum foil is supported by the data table? Include the data that supports your answer.	Aluminum foil completed the circuit, or allowed current to move through it. The bulb lit in 3 out of 3 trials.
4	What limit did the class notice, and what change could make its claim stronger?	They used only one piece of each material. They could test another sample of each material or do more trials.

PART 3 • YOUR TURN (SAMPLE ANSWER)

My question is, Which of three new materials will complete a low-voltage circuit? I will test a brass fastener, a rubber band, and a plastic spoon, using the same battery, bulb, wires, and test method each time. I predict the brass fastener will light the bulb, but the rubber band and plastic spoon will not. For each material, I will record the number of glowing-bulb trials out of three and use the results to make a claim.

Accept equivalent wording for current moving, conducting, or completing the circuit. In the open response, accept reasonable predictions, provided the student names three materials, identifies controls, and states measurable evidence to record.