

Building and drawing simple circuits

Grade 6 science (Year 7 · Class 6) · Lab answers

The sample data show that metals and graphite conduct while plastic, rubber, glass and wood do not. Compare your own tester results with these answers and check that you explained each pattern.

Level: Grade 6 science (Year 7 · Class 6) · **Curriculum:** MS-PS2-3

Question 1 Classification

Conductors: iron nail, copper wire, aluminium foil, pencil lead, coin, bare steel blade.

Insulators: plastic ruler, rubber eraser, glass slide, wooden stick, painted handle.

Question 2 Pattern

Metals conduct, while plastic, rubber, glass and wood do not. Graphite is a non-metal that conducts.

Question 3 The painted key

The paint is an insulator and covers the metal, so the handle blocked the current. The bare steel blade is a conductor, so **the bulb lit when the clips touched metal**.

Question 4 Dim bulb

Graphite conducts, but not as well as metals, so less current flows and the bulb is **dim**.

Question 5 Fair test

Use the **same cell and bulb** and clip the object in the **same way** (with a similar length of material between the clips).

Question 6 Safety

Mains electricity can **cause a fatal shock**; a 1.5 V cell cannot.

Question 7 Improvement

Replace the bulb with a meter that measures the current, or compare several bulbs of the same type, and repeat each test to check the result.