

Testing materials to choose the right one

Grade 6 science (Year 7 · Class 6) · Test answers (mark scheme)

Use these model answers and the marking notes to score your test. Award marks for correct method even when an arithmetic slip changes the final number.

Level: Grade 6 science (Year 7 · Class 6) · **Curriculum:** MS-PS1-3

Question 1 Property (2 marks)

- a. A feature of a material that can be observed or measured.
- b. For example hardness, tested by scratching with a nail.

Marking: 1 mark for the definition, 1 mark for a valid property with a matching test.

Question 2 Reading a circuit (2 marks)

- a. Sample X is a conductor.
- b. Any metal, for example copper.

Marking: 1 mark for conductor, 1 mark for a metal or graphite.

Question 3 Magnet test (2 marks)

- a. Steel is magnetic and aluminium is not.
- b. Only iron, steel, nickel and cobalt are attracted; copper and aluminium are metals that are not.

Marking: 1 mark for each correct statement.

Question 4 Aluminium cans (3 marks)

- a. $1250 \times 15 \text{ g} = 18\,750 \text{ g} = 18.75 \text{ kg}$.
- b. $240 - 12 = 228 \text{ MJ per kg}$.
- c. $18.75 \times 228 = 4275 \text{ MJ}$.

Marking: 1 mark for 18.75 kg, 1 mark for 228 MJ/kg, 1 mark for 4275 MJ (accept error carried forward).

Question 5 Oven handle (2 marks)

Plastic and wood are poor conductors of heat, so heat does not travel to the hand. The metal pan conducts heat to the food.

Marking: 1 mark for poor conductor, 1 mark for linking this to the hand staying cool.

Question 6 Scratch ranking (3 marks)

- a. F is scratched by E, and E is scratched by G, so the order is F, then E, then G.
- b. F is the softest.

Marking: 2 marks for the correct order, 1 mark for F.

Question 7 Bicycle tyre (2 marks)

Rubber is flexible so it bends over bumps, and it is tough and resists wear.

Marking: 1 mark each for flexible and for a second sensible property such as insulator or hard-wearing.

Question 8 Testing bending (2 marks)

Use rulers of the same length, hang the same mass at the same overhang and measure the sag of each in millimetres; only the type of plastic changes.

Marking: 1 mark for controlling variables, 1 mark for measuring the sag.

Question 9 Choosing a mat (2 marks)

Wood or glass, because both are poor conductors of heat while copper conducts heat to the table. Wood does not crack on heating, so wood is the best choice.

Marking: 1 mark for rejecting copper with a reason, 1 mark for a justified choice.