

Testing materials to choose the right one

Grade 6 science (Year 7 · Class 6) · Test

Name: _____ Date: _____ Class: _____ Mark: ____ / 20

This test has nine questions and is worth 20 marks. Show each step of any calculation and write the unit with every answer. You have 45 minutes.

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

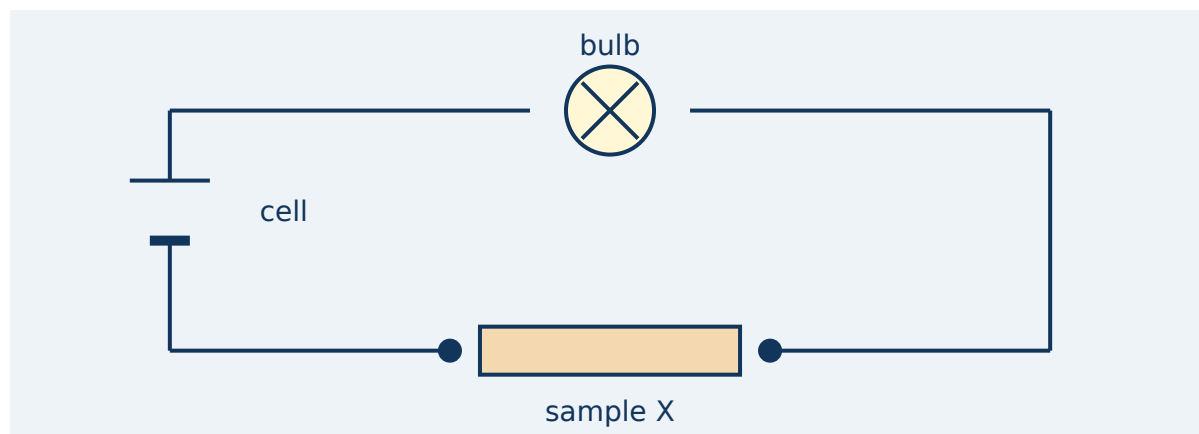
Time: 45 minutes · 9 questions · Total: 20 marks · Calculator allowed

Question 1 Property (2 marks)

- Define the term *property* of a material. (1 mark)
- Give one example of a property and one way to test it. (1 mark)

Question 2 Reading a circuit (2 marks)

The bulb is lit in the figure.



Circuit for question 2. The bulb is lit.

- What does this tell you about sample X? (1 mark)
- Name one material that sample X could be. (1 mark)

Question 3 Magnet test (2 marks)

A magnet attracts a steel spoon but not an aluminium spoon.

- State what this shows. (1 mark)
- A student says that all metal objects are attracted. Explain why this is wrong. (1 mark)

Question 4 Aluminium cans (3 marks)

A class collects 1250 aluminium cans. Each can contains 15 g of aluminium. Making 1 kg of aluminium from ore needs 240 MJ, and recycling 1 kg needs 12 MJ.

- Calculate the total mass of aluminium in kilograms. (1 mark)
- Calculate the energy saved per kilogram. (1 mark)
- Calculate the total energy saved by recycling all the cans. (1 mark)

Question 5 Oven handle (2 marks)

Explain why the handle of a metal frying pan is made of plastic or wood. (2 marks)

Question 6 Scratch ranking (3 marks)

Material E scratches material F. Material G scratches E. Material F scratches nothing.

- Put E, F and G in order from softest to hardest. (2 marks)
- Name the material that is most likely to be scratched by every other one. (1 mark)

Question 7 Bicycle tyre (2 marks)

Give two properties that make rubber a good material for a bicycle tyre. (2 marks)

Question 8 Testing bending (2 marks)

Describe how to compare the flexibility of three plastic rulers as a fair test. (2 marks)

Question 9 Choosing a mat (2 marks)

A cook needs a mat to put hot pans on. Wood, copper and glass are available. Choose the best material and justify your choice. (2 marks)