

How heat moves and how to measure temperature

Grade 7 science (Year 8 · Class 7) · Test

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

This test has 8 questions and is worth 20 marks. Give units in all calculations and use full sentences for the explanations. Draw on what you know about heat, temperature and the three methods of transfer.

Level: Grade 7 science (Year 8 · Class 7) · **Curriculum:** MS-PS3-3, MS-PS3-4

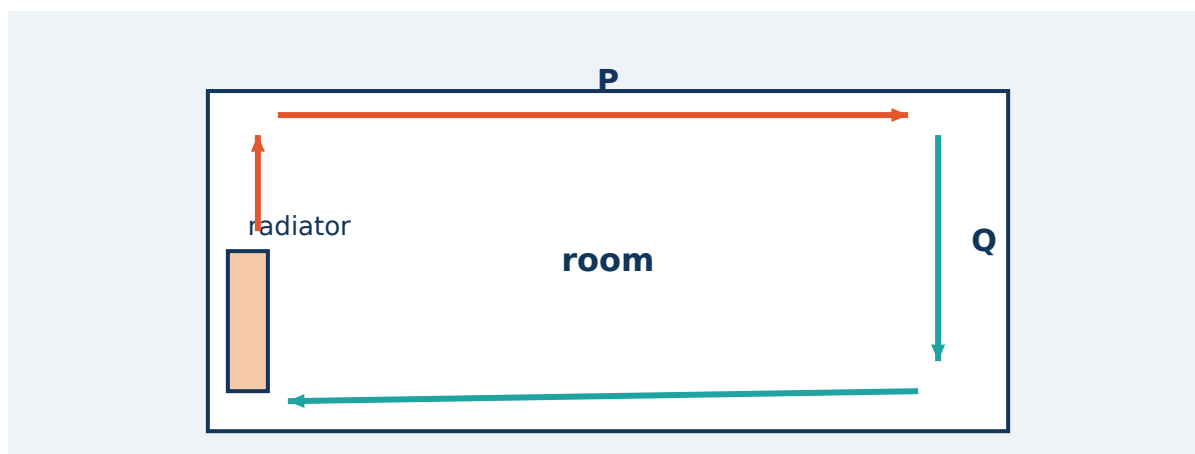
Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

Question 1 Heat and temperature (2 marks)

State one difference between heat and temperature.

Question 2 Air in a room (3 marks)

The diagram shows air moving in a room with a radiator.



Air movement in a room.

- Name the process shown. (1 mark)
- Explain why the air rises near the radiator. (1 mark)
- Explain why the air sinks at the far right wall. (1 mark)

Question 3 Pan handle (2 marks)

A saucepan has a metal base and a wooden handle. Explain why each material is a good

choice.

Question 4 Cooling rate (3 marks)

A cup of milk cools from 90 °C to 66 °C in 8 minutes.

- Calculate the fall in temperature. (1 mark)
- Calculate the average cooling rate in °C/min. (2 marks)

Question 5 Roof colour (3 marks)

Wanjiru finds that a black tin heats up much faster in the sun than a white tin of the same size.

- Name the method by which the Sun's energy reaches the tins. (1 mark)
- Explain the difference in heating. (2 marks)

Question 6 Insulation (2 marks)

Explain how a woolly hat reduces heat loss from the head.

Question 7 Comparing cups (3 marks)

Cup X is bare and falls from 85 °C to 49 °C in 20 minutes. Cup Y is wrapped in foam and falls from 85 °C to 67 °C in the same time.

- Calculate the fall for each cup. (1 mark)
- Calculate how many times bigger the fall for X is than for Y. (1 mark)
- State what the result shows about foam. (1 mark)

Question 8 Spot the mistake (2 marks)

Bilal writes: 'Heat flows from cold things to hot things because cold things are hungry for heat.' Identify the mistake and correct it.