

How particles explain solids, liquids and gases

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

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

This test has 8 questions and is worth 20 marks. Answer in full sentences when a question says explain, and show working in every calculation. Use only your own knowledge of the particle model and give units.

Level: Grade 7 science (Year 8 · Class 7) · **Curriculum:** MS-PS1-1, MS-PS1-4

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

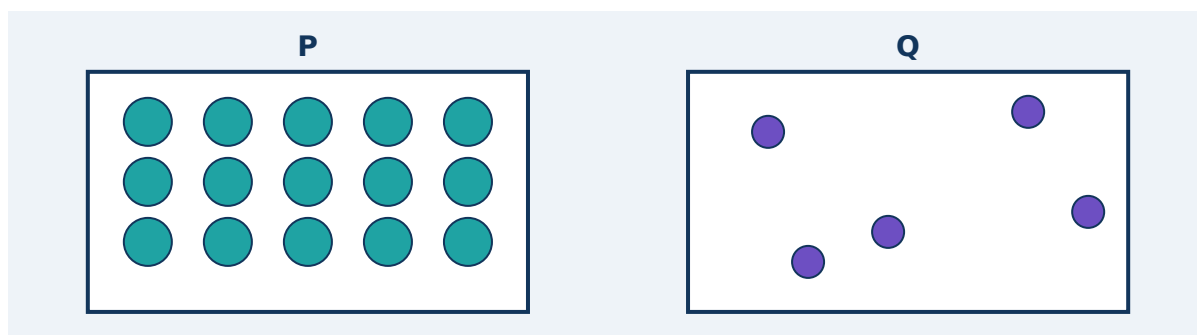
Question 1 Three states (2 marks)

Name the state of matter described by:

- particles touching, in fixed positions, only vibrating (1 mark)
- particles far apart, moving fast and freely (1 mark)

Question 2 Reading the diagram (3 marks)

Look at the diagram.



Boxes P and Q.

- Identify which box shows a solid. (1 mark)
- Describe how the particles in box Q move. (1 mark)
- Explain why box Q could be squashed into a smaller volume but box P could not. (1 mark)

Question 3 Pressure of a gas (2 marks)

A sealed bottle of air is left in the sun. Explain, using particles, why the bottle gets harder to squeeze.

Question 4 Diffusion (3 marks)

A cook in Lahore fries spices in the kitchen.

- Name the process by which the smell reaches the garden. (1 mark)
- Explain how this process happens. (2 marks)

Question 5 Spreading speed (3 marks)

Ink spreads 4.5 cm in 90 s in a cup of warm water.

- Calculate the average speed in cm/s. (2 marks)
- State what happens to the speed if the water is cooler. (1 mark)

Question 6 Changes of state (2 marks)

Name the change of state in each case.

- Solid to liquid (1 mark)
- Gas to liquid (1 mark)

Question 7 Plateau on a graph (3 marks)

When a solid is heated, its temperature stops rising at the melting point for a while. Explain why, using the particle model.

Question 8 Spot the mistake (2 marks)

Wanjiru says: 'When water boils, the water particles get bigger and turn into steam particles.' Identify the mistake and correct it.