

Physical Changes and Particle Model (KS3)

Section A – Recall (1–2 marks each)

Q1 (1 mark)

What is meant by a physical change?

Q2 (1 mark)

State the three states of matter.

Q3 (1 mark)

What is evaporation?

Q4 (1 mark)

What is condensation?

Q5 (2 marks)

State TWO differences between solids and gases.

Q6 (2 marks)

What is diffusion?

Q7 (2 marks)

What is meant by conservation of mass?

Q8 (2 marks)

What is Brownian motion?

Q9 (2 marks)

What is meant by internal energy?

Section B – Understanding (3 marks each)

Q10 (3 marks)

Explain the difference between a chemical change and a physical change.

Q11 (3 marks)

Explain why gases can be compressed more easily than solids.

Q12 (3 marks)

Explain how particles behave when a solid melts.

Q13 (3 marks)

Explain why diffusion happens at a different rate in gases than in liquids.

Q14 (3 marks)

Explain the anomaly of water when ice melts.

Q15 (3 marks)

Explain what happens to internal energy when a material is heated.

Q16 (3 marks)

Explain how particle arrangement affects density.

Section C – Application (3–4 marks each)

Q17 (3 marks)

A substance changes from a liquid to a gas. Name this process and describe what happens to the particles.

Q18 (3 marks)

A gas spreads through a room. Explain this using the particle model.

Q19 (3 marks)

A student dissolves 10000 mg of salt in 100 g of water. What is the total mass of the solution? Give your answer in grams

Q20 (3 marks)

Dry ice changes directly from a solid into a gas at room temperature. Name this process and explain what happens to the particles during this change.

Q21 (3 marks)

Describe the arrangement and movement of particles in a solid, liquid and gas.

Q22 (4 marks)

A student heats a gas. Explain how the motion and spacing of particles change.

Q23 (3 marks)

Describe how diffusion occurs in liquids and gases and compare the rate it happens in liquids and gases.

Q24 (3 marks)

Ice has a density of 0.92 g/cm^3 and liquid water has a density of 1.00 g/cm^3 . Explain why ice floats on water.

Q25 (3 marks)

A sealed flask and contents have a mass of 250 g before melting and 250 g after melting. Explain why the mass stays the same.

Q26 (4 marks)

During a *Learntit* science lesson, a teacher places food colouring into water. After a few minutes the colour spreads through the beaker. Explain this process using the particle model.

Q27 (4 marks)

A gas is heated from 20°C to 80°C. Explain how the particles and internal energy change.

Section D – Extended Response (6 marks)

Q28 (6 marks)

Explain the different changes of state: melting, freezing, evaporation, condensation, boiling and sublimation. Include ideas about energy and particle behaviour.

Q29 (6 marks)

Explain diffusion and density differences in solids, liquids and gases. Include how particle movement and spacing affect these properties.

Total: ____ / 83

Percentage: ____%