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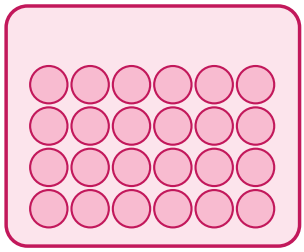
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CHEMISTRY

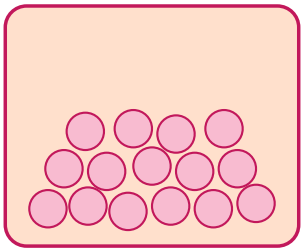
States of Matter

Particles, Gas Pressure & Diffusion

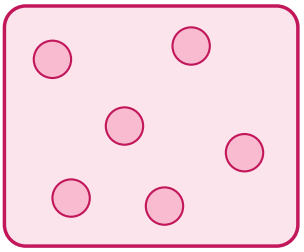
Year 7 • KS3 Science • Homework Worksheet



Solid



Liquid



Gas

Name: _____

Class: _____

Date: _____

Instructions

- Answer **all** questions in the spaces provided.
- Write in black or blue pen.
- Use **particles** in your explanations.
- The marks for each question are shown in [brackets].
- Suggested time: **40 minutes**.

Section	Marks	Score
A States of Matter	11	
B Gas Pressure	12	
C Diffusion	12	
Total	**35**	

Teacher comment: _____

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Section A – States of Matter

1 Draw the **particles** in each box to show how they are arranged in a solid, a liquid and a gas. [3 marks]

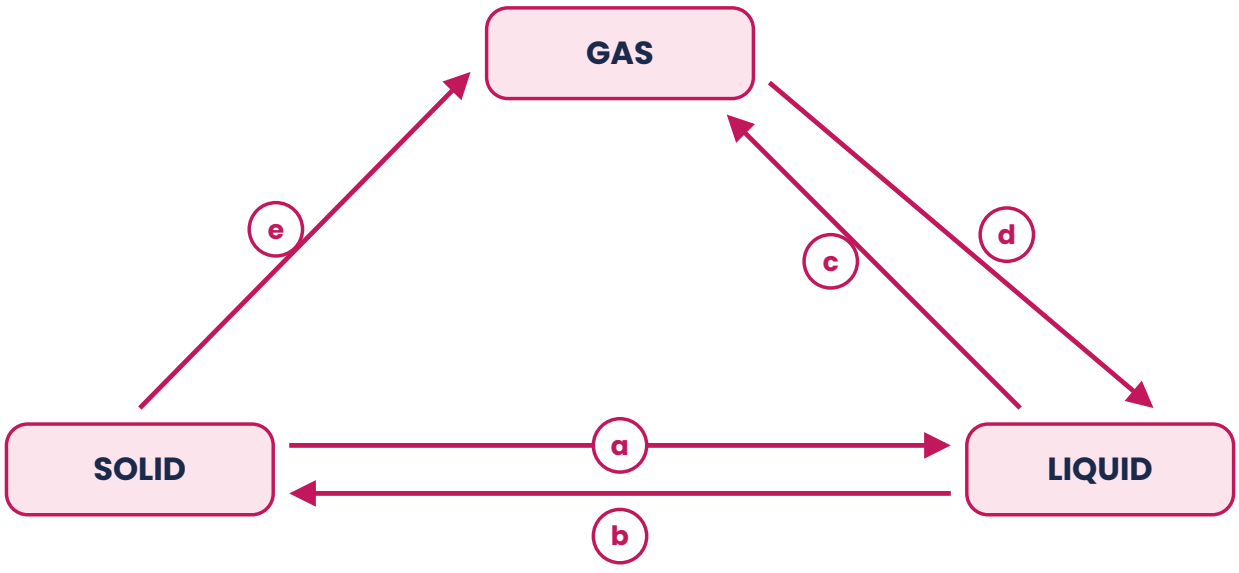
Solid	Liquid	Gas

2 Complete the table. Write **Yes** or **No** in each box. [3 marks]

Property	Solid	Liquid	Gas
Has a fixed shape			
Has a fixed volume			
Can be squashed (compressed)			

3 The diagram shows the **changes of state**. Write the correct name on each line **a** to **e**, using the words in the box. [5 marks]

melting freezing boiling condensing sublimation

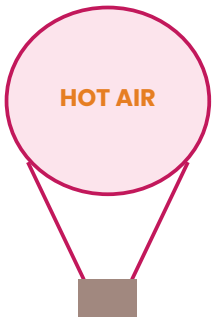


a) _____ b) _____ c) _____

d) _____ e) _____

Section B – Pressure & Temperature in Gases

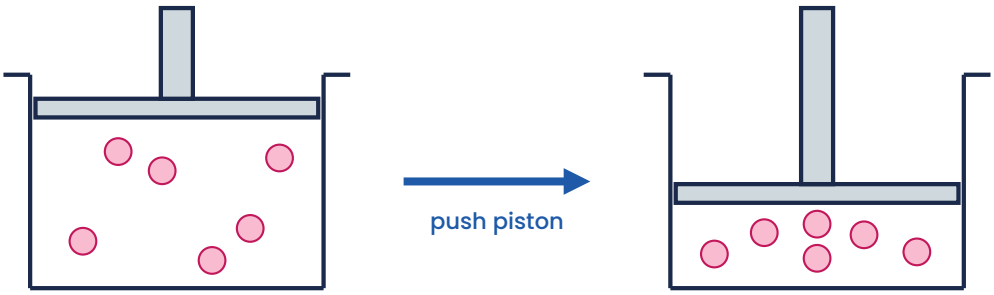
4 When the air inside a **hot air balloon** is heated, the balloon gets bigger.



a) What happens to the **volume** of a gas when its **temperature increases**? [1 mark]

b) Use ideas about **particles** to explain why the balloon gets bigger. [2 marks]

5 A gas is trapped in a container. The piston is pushed down, which **increases the pressure**.



a) Has the **number** of gas particles changed? _____ [1 mark]

b) What has happened to the **volume** of the gas? _____ [1 mark]

c) Explain why the **pressure** of the gas increases. Use ideas about particles. [2 marks]

CHALLENGE

d) Aerosol cans (like deodorant) carry the warning: *"Do not heat or leave in direct sunlight."* Explain why this warning is needed. [3 marks]

6 A football is pumped up indoors and then taken outside on a very **cold** day. It starts to feel softer. Suggest why. [2 marks]

Section C – Diffusion

7 Complete the sentences about diffusion. [3 marks]

a) Diffusion happens in gases and _____ .

b) Particles move from an area of _____ concentration to an area of _____ concentration.

c) Diffusion happens because the particles move _____ .

8 Someone is cooking curry in the kitchen. A few minutes later, a person sitting in the living room can smell it. Explain how the smell reaches them. [2 marks]

EXAM-STYLE (IGCSE / GCSE)

9 Cotton wool soaked in **ammonia** and cotton wool soaked in **hydrochloric acid** are placed at opposite ends of a long glass tube. After a few minutes a **white ring** forms inside the tube.



a) The white solid is **ammonium chloride**. How do the ammonia and hydrogen chloride particles meet? [1 mark]

b) The white ring forms **closer to the hydrochloric acid** end. What does this tell you about the ammonia particles? Explain your answer. [2 marks]

c) The experiment is repeated in a **warmer** room. Predict how the time for the white ring to form changes, and explain why. [2 marks]

CHALLENGE

10 A purple crystal is dropped into a beaker of **cold** water and another into a beaker of **hot** water. In which beaker does the purple colour spread faster? Explain your answer. [2 marks]