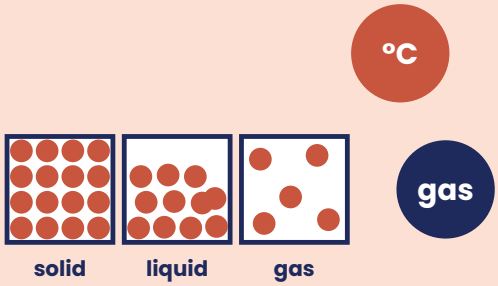
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Year 7 • KS3 Chemistry

States of Matter



Mark Scheme – Teacher Copy

Answers, marking points and guidance for the States of Matter worksheet.

Solids | Liquids | Gases | Changes of state | Gas pressure | Diffusion

KEY IDEAS IN THIS WORKSHEET

YEAR 7

Name: _____ Class: _____

Date set: _____ Date due: _____

What's inside

Section A	States of matter	11 marks
Section B	Pressure and temperature in gases	12 marks
Section C	Diffusion	12 marks

Marking notes

- (1) = one mark for each marking point.
- / separates alternative answers.
- Allow error carried forward in calculations.
- Accept any correct, clearly expressed alternative.

Total marks

35

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States of Matter Worksheet – Mark Scheme

Total: 35 marks. (1) = one mark. Accept any scientifically correct alternative wording.

Section A – States of matter

Q	Answer	Mark	Guidance
1	solid: particles touching in regular rows (1); liquid: particles mostly touching but randomly arranged (1); gas: particles far apart and randomly spread out (1)	3	
2	fixed shape: Yes, No, No; fixed volume: Yes, Yes, No; can be compressed: No, No, Yes	3	1 mark for each fully correct row
3	a) melting; b) freezing; c) boiling; d) condensing; e) sublimation	5	1 mark each; accept evaporating for c
	Section A total	**11**	

Section B – Pressure and temperature in gases

Q	Answer	Mark	Guidance
4(a)	the volume increases / the gas expands	1	
4(b)	the particles gain (kinetic) energy and move faster (1); they move further apart / take up more space, so the air expands (1)	2	
5(a)	no, the number of particles stays the same	1	
5(b)	the volume decreases / gets smaller	1	
5(c)	the same number of particles are in a smaller space (1); so they hit the container walls more often (1)	2	
5(d)	heating gives the gas particles more energy, so they move faster (1); they hit the walls of the can more often and harder, so the pressure increases (1); if the pressure gets too high the can could burst / explode (1)	3	
6	in the cold air the particles lose energy and move more slowly (1); they hit the inside of the ball less often, so the pressure falls (1)	2	
	Section B total	**12**	

Section C – Diffusion

Q	Answer	Mark	Guidance
7	a) liquids; b) high … low; c) randomly	3	1 mark each
8	smell particles move randomly / diffuse through the air (1); from a high concentration in the kitchen to a low concentration in the living room (1)	2	
9(a)	by diffusion: the particles move randomly through the air in the tube until they meet	1	
9(b)	ammonia particles move / diffuse faster, so they travel further in the same time (1); because ammonia particles are lighter (smaller mass) than hydrogen chloride particles (1)	2	
9(c)	the ring forms faster / takes less time (1); particles have more kinetic energy at a higher temperature, so they move faster (1)	2	
10	the hot water (1); the particles have more kinetic energy / move faster, so diffusion is faster (1)	2	
	Section C total	**12**	

Worksheet total: 35