



7G The Particle Model

1. Solids, Liquids and Gases

States of Matter	The three forms that a substance can be in; solid, liquid or gas.
Solid Properties	Do not flow Fixed shape Fixed volume Cannot be compressed
Liquid Properties	Can Flow No fixed shape Fixed volume Cannot be compressed
Gas Properties	Can flow No fixed shape No fixed volume Can be compressed
Flow	To move and change shape smoothly.
Volume	The amount room something takes up. Measured in cubic centimetres (cm^3).
Compressed	Squashed into a smaller volume.
Pressure	The amount of force pushing on a certain area.

2. Particles

Particle Theory	A theory used to explain the different properties and observations of solids, liquids and gases.
Particles	Tiny pieces of matter that everything is made out of.
Forces	Tiny forces of attraction hold the particles together.

Solid Particle Properties	Fixed arrangement of particles held closely together that cannot move over each other but vibrate.
Liquid Particle Properties	Held closely together but not in a fixed arrangement and can move over each other.
Gas Particle Properties	Far apart from each other and free to move about in all directions.
Solid Particle Diagram	
Liquid Particle Diagram	
Gas Particle Diagram	
Vibrate	To move backwards and forwards.
Brownian Motion	An erratic movement of small specks of matter caused by being hit by the moving particles that make up liquids or gases.

Trace	Used to plot the movement of a particle and used as evidence for Brownian motion.
Molecule	Two or more atoms joined together in a group.
Nanometre	A unit of measurement. 1 nanometre (nm) is 0.000 001 metres (m)

4. Diffusion	
Diffusion	The movement of particles spreading out and mixing with each other without anything moving them.
Particle Theory and Diffusion	Occurs quickly in gases because they are able to move freely in all directions. Diffusion is slower in liquids because the particles are still moving but not as freely as in a gas. Diffusion cannot occur in solids because the particles are in a fixed position.
Small Intestine	Diffusion of particles of essential substances in our food pass through the wall of the small intestine.
5. Air Pressure	
Air Pressure	The force on a certain area caused by air molecules hitting it.
High Air Pressure	Makes sure tyres are inflated. Can also affect the weather making it dry and settled.
Vacuum	A completely empty space containing no particles (not even air).

Straws	Straws work because when you suck, you reduce the pressure inside the straw so the air pressure outside the straw is greater and the liquid is pushed up.
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Lesson	Memorised?
1. Solids, Liquids and Gases	
2. Particles	
3. Brownian Motion	
4. Diffusion	
5. Air Pressure	