

## 7G The Particle Model

### 1. Solids, Liquids and Gases

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

### 2. Particles

<b>Particle Theory</b>	A theory used to explain the different properties and observations of solids, liquids and gases.
<b>Particles</b>	Tiny pieces of matter that everything is made out of.
<b>Forces</b>	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.

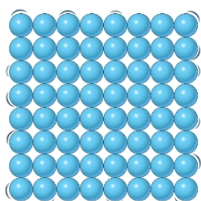
#### Liquid Particle Properties

Held closely together but not in a fixed arrangement and can move over each other.

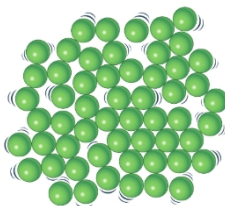
#### Gas Particle Properties

Far apart from each other and free to move about in all directions.

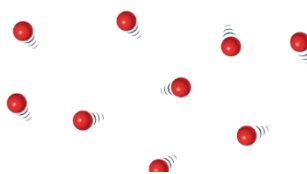
#### Solid Particle Diagram



#### Liquid Particle Diagram



#### Gas Particle Diagram



#### Vibrate

To move backwards and forwards.

### 3. Brownian Motion

#### 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 0.000 000 001 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.

#### Lesson

#### Memorised?

#### 1. Solids, Liquids and Gases

#### 2. Particles

#### 3. Brownian Motion

#### 4. Diffusion

#### 5. Air Pressure