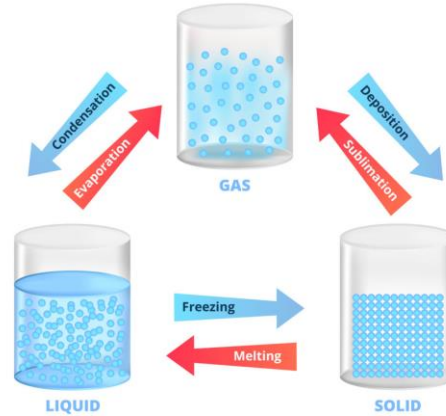


# C1 – States of matter

Keyword	Definition
<b>Solid</b>	A substance with fixed shape and volume
<b>Liquid</b>	A substance with a fixed volume but not a fixed shape
<b>Gas</b>	A substance with no fixed shape nor volume
<b>Melting</b>	The change of state from solid to liquid
<b>Boiling</b>	The change of state from liquid to gas
<b>Freezing</b>	The change of state from liquid to solid
<b>Condensing</b>	The change of state from gas to liquid
<b>Diffusion</b>	The movement of particles a higher to a lower concentration
<b>Gas pressure</b>	Caused by particles colliding with the walls of a container

## CHANGING STATES OF MATTER



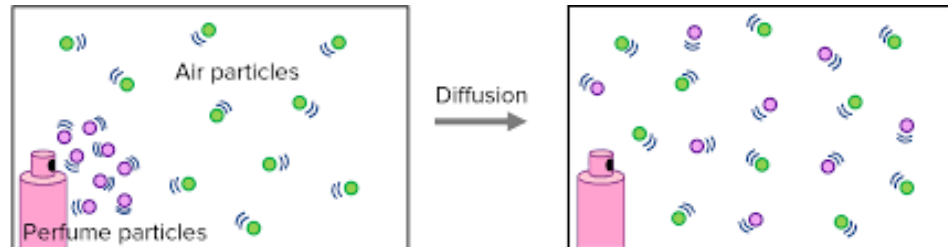
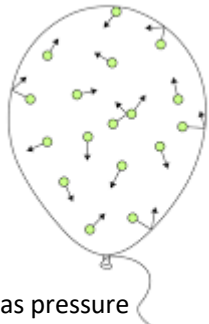
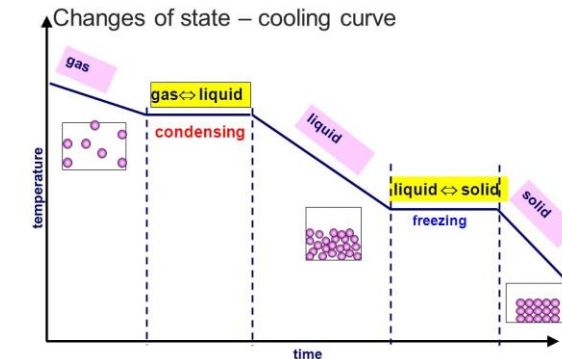
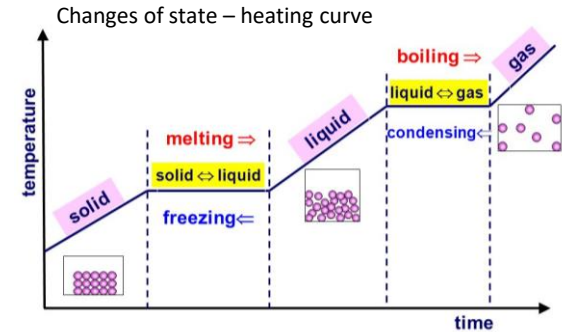
### Forces between particles:

**Solid:** There are strong forces of attraction between the particles in a solid. Therefore, particles can only vibrate in a fixed position.

**Liquid:** There are weaker forces of attraction between the particles in a liquid. Therefore, the particles are close together, and are able to move around each other.

**Gas:** The forces of attraction between the particles are overcome. Therefore, the particles are far apart and move quickly in all directions.

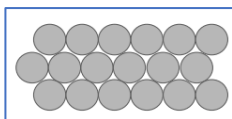
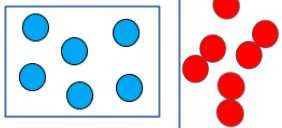
Solid	Liquid	Gas
The particles vibrate in a fixed position.	The particles are close together and move around each other.	The particles are far apart and move quickly in all directions.
The particles cannot move from place to place.	The particles are arranged in a random position.	The particles are arranged in a random way.
Particles have a fixed shape and cannot flow.	The particles flow and take the shape of the bottom of their container.	The particles flow and completely fill their container.
The particles cannot be compressed (squashed)	The particles cannot be compressed.	The particles can easily be compressed.



# C1 – Elements, compounds, mixtures, chemical reactions, acids and alkalis

Keyword	Definition
Element	A substance made of atoms of the same type
Compound	A substance made of more than one type of atom chemically joined together
Mixture	Two or more substances not chemically joined together.
Physical change	A change of state where no new substances are made. For example, water boiling.
Chemical change	A change in which atoms rearrange to make new substances. For example, iron rusting.
Reactants	The starting substances in a chemical reaction
Products	The new substances made in a chemical reaction
Acid	A substance with a pH of less than 7
Alkali	A substance with a pH of

Element



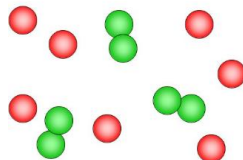
Examples: iron; oxygen.

Compound



Examples: water, carbon dioxide.

Mixture



Examples: air, seawater

Household acids



Vitamin C – Ascorbic Acid



Lemons – Citric Acid



Fizzy Drink – Carbonic Acid



Vinegar – Ethanoic Acid

Laboratory acids

Hydrochloric Acid (HCl), Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) and Nitric Acid (HNO<sub>3</sub>) are strong acids which we use in the Science Lab.

These acids have to be diluted so they are safe to handle.

Household alkalis



Soap and washing up liquid are safe alkalis.



Oven cleaner is a very strong alkali which is very corrosive.

Laboratory alkalis

Sodium hydroxide (NaOH) and potassium hydroxide (KOH) are strong alkalis which we use in the Science Lab.

These alkalis have to be diluted so they are safe to handle.



Irritant hazard sign, used for substances that are not corrosive but are irritants. Usually found on more dilute acids and alkali.



Corrosive hazard sign. Usually found on more concentrated acids and alkali.

The pH scale.

