

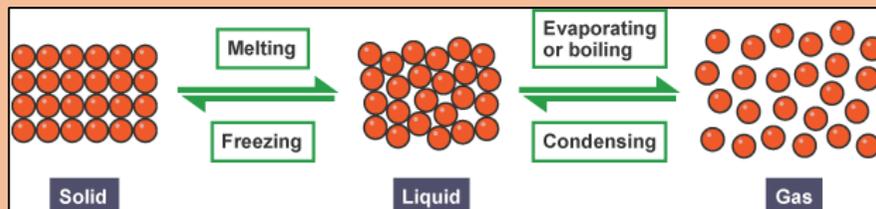
## Key Knowledge

### States of Matter:–

	Solids	Liquids	Gases
State	Solid	Liquid	Gas
Diagram			
Arrangement of particles	Regular arrangement	Randomly arranged	Randomly arranged
Movement of particles	Vibrate about a fixed position	Move around each other	Move quickly in all directions
Closeness of particles	Very close	Close	Far apart

### Changes of State

As a substance is heated it gains energy. When the particles gain enough energy, they overcome the forces between them. Whilst a change of state is happening the temperature of the substance does not change. (flat line on graph)



### Density

1 kg of a gas has a larger volume than 1 kg of a solid.

There is empty space between particles in a gas, but in a solid, they are tightly packed together.

$$\text{Density} = \text{Mass} / \text{Volume}$$

... so the density of the gas is much smaller than the density of the solid.

### Diffusion

Particles in a liquid or a gas spread out from an area of high concentration to an area of low concentration until the concentrations are equal.

The higher the concentration gradient the faster the net diffusion.

The higher the temperature the faster the net diffusion.

If the particles that are spreading are water molecules we call this process osmosis.

### We are learning and investigating...

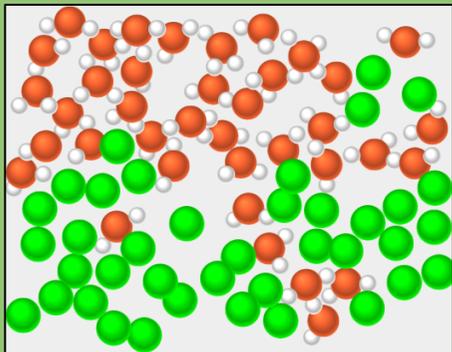
to recognise the hazards in the lab, how to be safe in the lab, to accurately read a thermometer, to use a Bunsen burner, particle theory, changes of state, and gas pressure.

## Dissolving

When the particles in a solid spread out in a liquid.

We call the liquid the SOLVENT

We call the solid the SOLUTE.



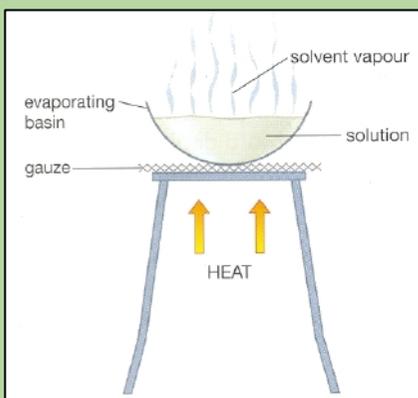
We call the mixture of the solid and the liquid a SOLUTION.

A solid that will dissolve in a liquid is called SOLUBLE.

A solid that will not dissolve in a liquid is called INSOLUBLE.

## Evaporation

Separating a soluble solid from a liquid.



## Key Vocabulary

solids	liquids
gases	particle theory
density	atoms
space	molecules
mass	energy
volume	temperature
melting	freezing
evaporation	condensation
dissolving	diffusion
solvent	solute
solution	soluble
insoluble	Brownian motion
concentration	