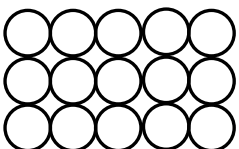
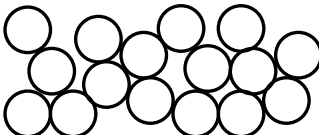
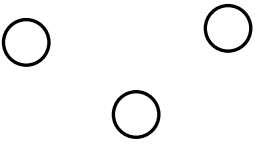


States of matter – summary

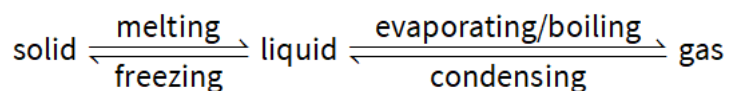
The particle model

	Solid state	Liquid state	Gas state
Relative spacing of particles	Very close together	Close together	Far apart
Arrangement of particles	Regular	Random	Random
Motion of particles	Vibrate about fixed positions	Move around each other	Move quickly in all directions
2D static model			
Physical properties	Fixed shape Fixed volume Not compressible	Flows and fills the bottom of its container Fixed volume Not compressible	Fills its container; escapes if the container is open Volume is equal to its container Compressible

Change of state

A substance may change state when its particles gain or lose energy.

The temperature of a substance stays the same during a change of state.



Melting

When energy is supplied to a substance in the solid state:

- its particles vibrate more violently
- some attractive forces between particles are overcome
- particles become free to move around each other.

The melting point is the temperature at which a substance melts.

Evaporation happens below the boiling point.

The boiling point is the temperature at which evaporation happens fastest and boiling occurs.

Evaporating and boiling

When energy is supplied to a substance in the liquid state:

- its particles vibrate more violently and move around each other more
- remaining attractive forces between particles are overcome
- particles escape from the surface of the substance and become free to move quickly in all directions.

Diffusion

The particles of a substance in the gas state move around very quickly in all directions. They can mix completely with each other. Dissolved particles and substances in the liquid state can also diffuse, but this happens more slowly.