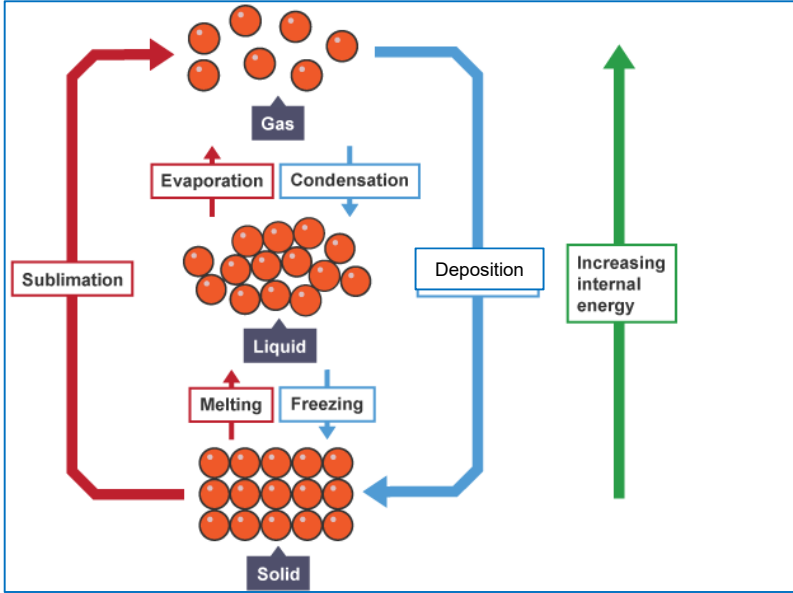
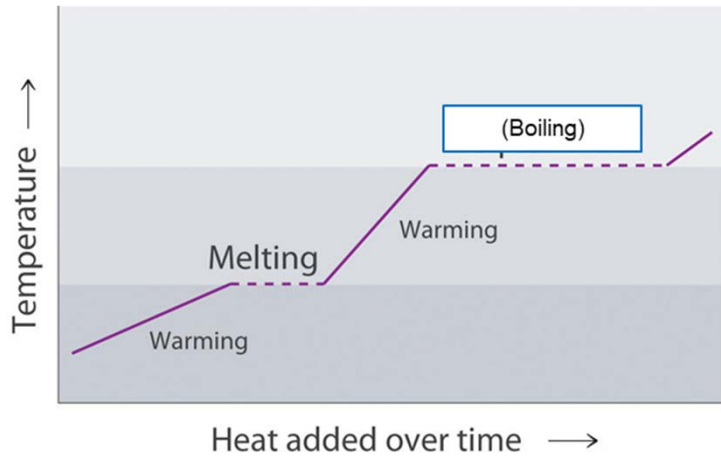




SOLID [Melting point] LIQUID [boiling point] GAS



The particle model

Properties of solids:

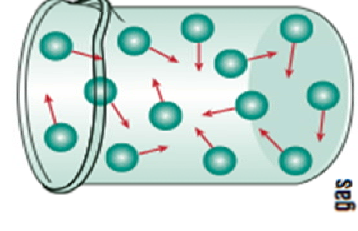
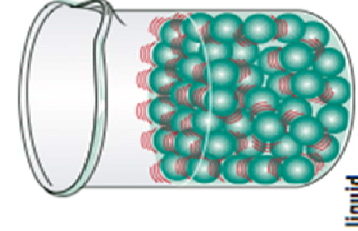
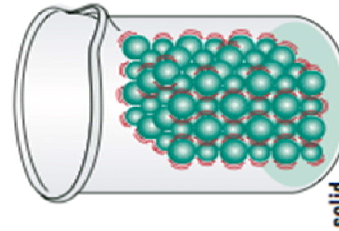
- have a definite shape
- do not flow
- virtually impossible to compress
- expand if heated, but usually less than liquids and gases.

Properties of liquids:

- no definite shape
- can flow to take the shape of the bottom of a container
- very difficult to compress (virtually incompressible).

Properties of gases:

- no fixed shape
- gases spread (or diffuse) to completely fill a container
- gases are easily compressed.



Particles in solids:

- strongly bonded to each other
- vibrate a little, but not much compared to liquids and gases
- vibrate faster when heated.

Particles in liquids:

- weakly bonded to each other
- break their bonds easily
- vibrate and move more than those in a solid
- move faster when heated.

Gas particles:

- are 'free', having no bonds between them
- have much more energy than those of a solid or liquid
- fly around, bouncing off each other and the walls of their container.

States of Matter



SOLID



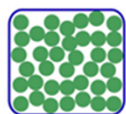
LIQUID



GAS



Solid state

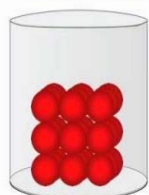


Liquid state



Gas state

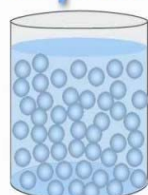
solid



- rigid
- fixed shape
- fixed volume

cannot be squashed

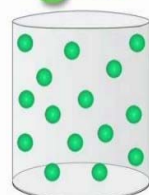
liquid



- not rigid
- no fixed shape
- fixed volume

cannot be squashed

gas



- not rigid
- no fixed shape
- no fixed volume

can be squashed

A. Key Terms:

Boiling.	The change of state from liquid to gas at boiling point
Boiling point.	The temperature at which a substance boils.
Condensation.	The change of state from gas to liquid.
Density	How much matter there is in a particular volume, or how close the particles are.
Diffusion	The process by which particles in liquids or gases spread out through random movement from a region where there are many particles to one where there are fewer.
Evaporation.	The change of state from liquid to gas at any temperature
Freezing.	The change of state from liquid to solid.
Gas.	In a gas state, a substance can flow and can also be compressed.
Liquid.	In the liquid state, a substance can flow but cannot be compressed.
Melting.	The change of state from solid to liquid.
Melting point.	The temperature at which a substance melts.
Particle.	A small part of matter.
Particle model	A way to think about how substances behave in terms of small, moving particles.
Property.	A quality of a substance or material that describes its appearance or how it behaves.
Solid.	In the solid state, a substance cannot be compressed and it cannot flow.
Sublimation.	The change of state from solid to gas.