

Matter

1. Particle model

CONCEPT 4

CHANGES OF STATE

NOTES

When we heat a substance, it causes the particles to gain energy. This enables the particles to move more, overcoming some of the intermolecular forces of attraction. This can result in a change of state.

- If we heat a solid so that the temperature rises above the melting point it will become a liquid. This change of state from solid to liquid is called **melting**.
- When we heat a liquid so that the temperature rises above the boiling point, it will become a gas. This change of state from liquid to gas is called **boiling**.
- Sometimes liquid can change state to become a gas at the surface of a liquid, at any temperature. This is called **evaporation**.
- Some solids can change state from a solid directly into a gas. This is called **sublimation**.

When we cool a substance, it causes the particles to lose energy. This leads to the particles moving less, allowing formation of more intermolecular forces of attraction. This can also result in a change of state.

- If we cool a gas so that the temperature drops below the boiling point, it will become a liquid. This change of state from gas to liquid is called **condensation**.
- When we cool a liquid so that the temperature drops below the melting point, it will become a solid. This change of state from liquid to solid is called **freezing**.
- Sometimes a liquid can change state to become a solid at any temperature. This is called **solidification**. Nail varnish is an example of this.