



# KNOWLEDGE ORGANISER

## SCIENCE: IN A STATE

## YEAR FOUR

### KEY KNOWLEDGE:

**QUESTION 1: What is melting and freezing?**

#### ANSWER

Melting, or fusion, is a physical process that results in the phase transition of a substance from a solid to a liquid. This occurs when the internal energy of the solid increases, typically by the application of heat or pressure, which increases the substance's temperature to the melting point.

Freezing, or solidification, is a phase transition in which a liquid turns into a solid when its temperature is lowered below its freezing point. For most substances, the melting and freezing points are the same temperature; however, certain substances possess differing solid–liquid transition temperatures.

**QUESTION 2: What is evaporation?**

#### ANSWER

Evaporation is the process of a substance in a liquid state changing to a gaseous state due to an increase in temperature and/or pressure. Evaporation is a fundamental part of the water cycle and is constantly occurring throughout nature.

The particles in a liquid have different energies. Some will have enough energy to escape from the liquid and become a gas. The remaining particles in the liquid have a lower average kinetic energy than before, so the liquid cools down as evaporation happens. This is why sweating cools you down. The sweat absorbs energy from your skin so that it can continue to evaporate.

**QUESTION 3: What is boiling?**

#### ANSWER

When a liquid becomes a gas it is called boiling or vaporization. Again, at a certain temperature called the boiling point, the molecules will gain enough energy to break free and become a gas. The boiling point for water is 100 degrees C (212 degrees F).



Hot gas from [steam engine](#) condensing

When the opposite occurs and a gas becomes a liquid, it is called condensation.