



Science Knowledge Organiser

States of Matter

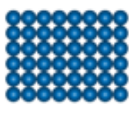
Potential Careers: Chemical Engineer, Pharmacologist, Pharmaceutical Pharmacist, Chemist

Lesson Sequence


- L1 - The 3 states of matter
- L2 - Particles in solids, liquids and gases
- L3 - Melting points
- L4 - Freezing and melting points
- L5 - Evaporation and condensation
- L6 - The water cycle

States of matter


Everything in our universe is made of **matter**. There are 3 states of matter:



Solid



Liquid

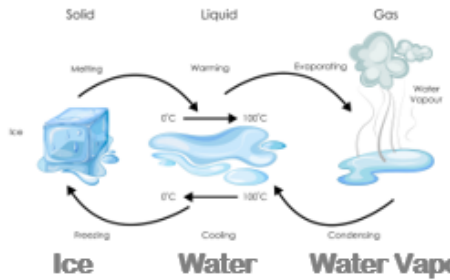


Gas

Solid particles have **strong** bonds so solids have a fixed shape. **Liquid** particles have **weaker** bonds and more energy so liquids can change shape. **Gas** particles have **really weak** bonds so gases can spread out and move freely.



Changes of state

States of matter can change. Substances can be **heated** or **cooled** to change from one state to another.




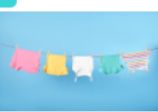
In water, the **melting** and **freezing** point is **0°C** and the **boiling** point is **100°C**. Different substances have different melting, freezing and boiling points.

Condensation













When **water vapour (gas)** touches a **cold** surface, the particles **lose energy** and the bonds become **stronger**, turning the gas into a **liquid**.

Evaporation

Heating liquid water **increases** the particle's energy and the bonds become **weaker**, turning it into a **gas**. The **hotter** the temperature, the **faster** the rate of evaporation.

Vocabulary

	thermometer	an instrument that measures temperature in degrees Celsius (°C) or Fahrenheit (°F)
	melting point	the point where a solid melts and forms a liquid when heated
	freezing point	the point where a liquid freezes and forms a solid when cooled
	boiling point	the point where a liquid evaporates and forms a gas when heated
	solid	state of matter that holds its form and shape
	liquid	state of matter which flows and forms a pool
	gas	state of matter which flows, can spread out and can be squashed
	evaporation	the process where a liquid turns into a gas when heated
	particles	one very small part of matter
	condensation	the process where a gas forms a liquid when cooled
	water vapour	the name of water as a gas
	substance	the material, or matter, of which something is made