



Fair testing



research



Observation over time

# STATES OF MATTER



Pattern seeking



Identify and classify



Problem solving

Lesson 1 compare and group the 3 states of matter.

Which state of matter can change volume?



Solid, liquid, gas, matter, volume.

Lesson 2 investigate melting points.

What is the melting point of ice?



Particle, melting, melting point, thermometer, temperature.

Lesson 3 Explore how different states of matter behave at different temperatures.

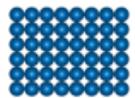


Boil, freeze, condense, evaporate, condensation

## What happens when we heat solids?

### States of matter

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



Solid



Gas

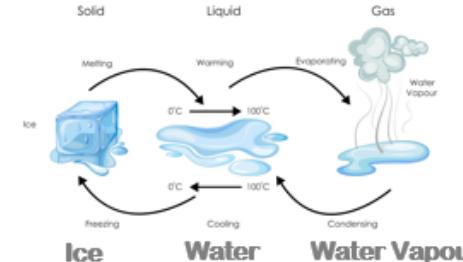


Liquid

**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.

### Careers connected this topic

Chemical engineer, pharmacologist, pharmacist, chemist

Year 4

Spring 1

Lesson 4 water cycle

Why is the water cycle so important?



Water cycle, precipitation, transpiration, ground water, surface run off.

Lesson 5

STEM investigation

Lesson 6

Can you explain all you have learned from this topic?

Vocab-all words from previous lessons.