The Knowledge

Supporting the National Curriculum

Knowing More **Remembering More** **Learning More**

States Of Matter

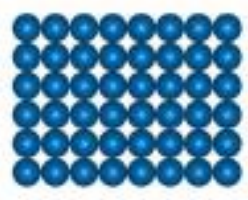
ARDLEIGH GREEN
JUNIOR SCHOOL

Year 4
Science

States of Matter

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

Solid particles have **strong** bonds so solids have a **fixed shape**.

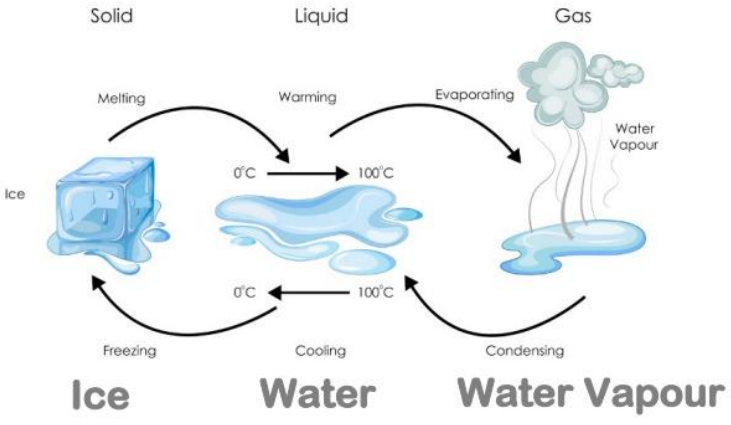


Liquid particles have **weaker** bonds and **more energy** so liquids can **change shape**.

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.

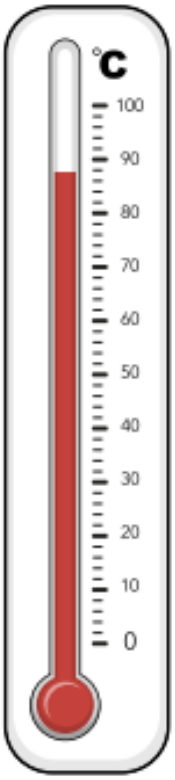
Measuring Temperature

1) Place the **thermometer** in the liquid.

1) Wait for the **coloured centre** to stop moving.

1) Read the **scale** precisely to find the temperature. Ask an adult for help if you are struggling.

Remember: We usually measure temperature in **degrees Celsius** which can be shortened to **˚C.**



Key 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**

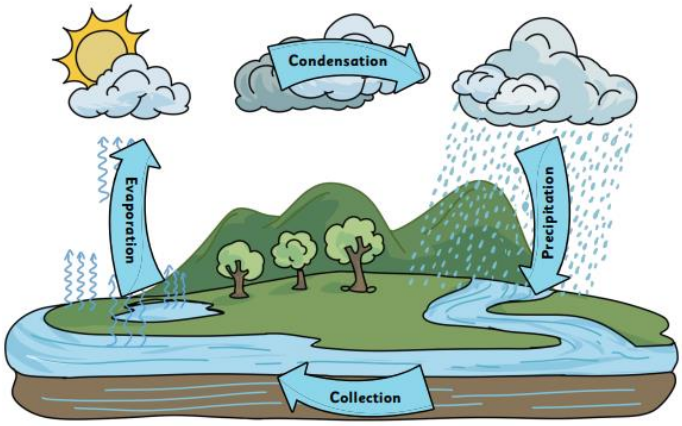
Substance: the material, or matter, of which something is **made**

Evaporation and Condensation

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.**

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

The Water Cycle



Test Yourself

- What is a gas?
- What is a liquid?
- What is a solid?
- How does temperature change the state of a material?
- What is a melting point?
- What are freezing and boiling points?
- What is evaporation and condensation?
- What stages are involved in the water cycle?
- How would you use a thermometer?
- Why would you use a thermometer?