



Coleman Primary School

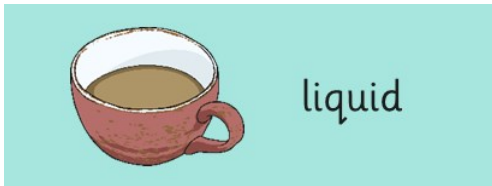
Year 4 Autumn 2 Knowledge Organiser

Science—States of Matter

The three states of matter



Solids keep their shape and can be cut, squashed or torn.



Liquids take the shape of the container they are in and can be poured.



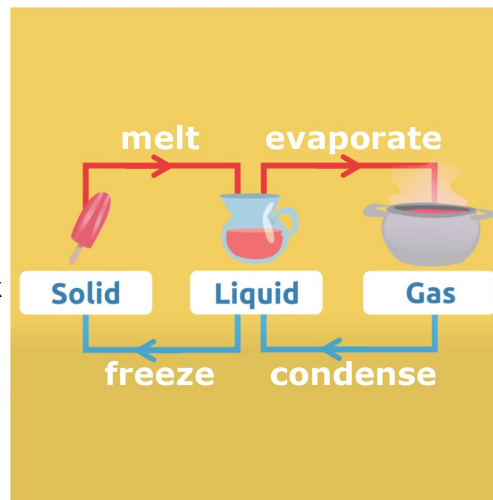
Gases spread out to fill a space and do not have any fixed shape.

Changing state

Things can change state by heating or cooling.

In this example, **solid** water, or ice, will **melt** when it is heated up and turn into a **liquid**. That liquid, water, can turn to a **gas** by **evaporating** when it is heated.

If we cool the gas, it will **condense** back to a liquid and if we cool the liquid it will **freeze** back into a solid.



? What else have you seen **melt**?

In Year Three you were...

- beginning to set up simple practical enquiries, comparative and fair tests
- making careful observations and, where appropriate, taking accurate measurements using standard units,
- using results to draw simple conclusions, suggest improvements and raise further questions

In Year Four you will be...

- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

You will learn...

- that there are three states of matter
- that some materials change state when they are heated or cooled
- that evaporation and condensation are part of the water cycle

Key Vocabulary: States of Matter

boiling: when a material reaches a temperature when it bubbles and turns into a gas rapidly

liquid: a state of a material when it can flow from one place to another and can be poured.

condensing: the process when a gas turns into a liquid

material: what an object is made of

evaporation: when a liquid turns into a gas, below its boiling point

melting: when a solid turns to a liquid

freezing: when a liquid turns into a solid

solid: a state of material when it does not change shape

gas: a state of a material when it fills the entire space available

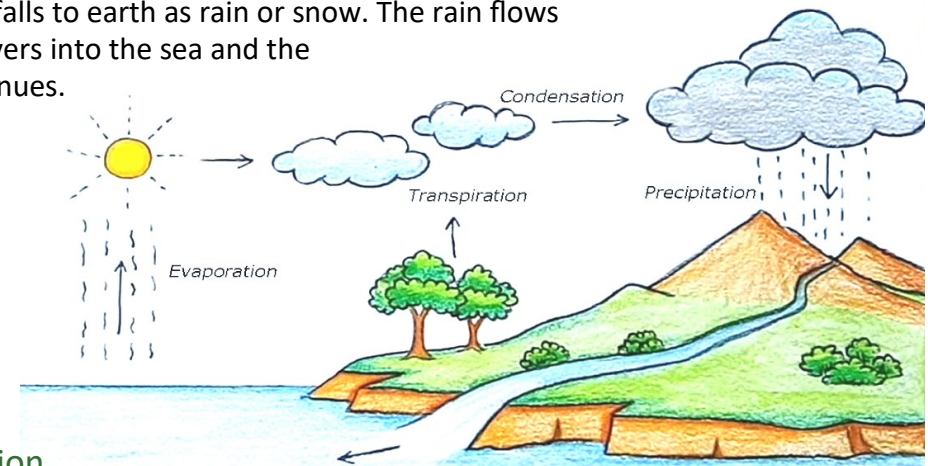
thermometer: a device used to measure temperature

matter: another name for 'material'

water cycle: how water moves around to create clouds, rain and the weather

The Water Cycle

The **water cycle** describes how water is reused and recycled. The sun heats up water and turns it into water vapour by **evaporation**. Then the water vapour cools and **condenses** into droplets which form clouds. The clouds get heavy and the water falls to earth as rain or snow. The rain flows through rivers into the sea and the cycle continues.



Scientific Skills Progression