

Science Knowledge Organiser

Southwold Primary School



Topic: States of mater

Year: 4

Strand: Chemistry

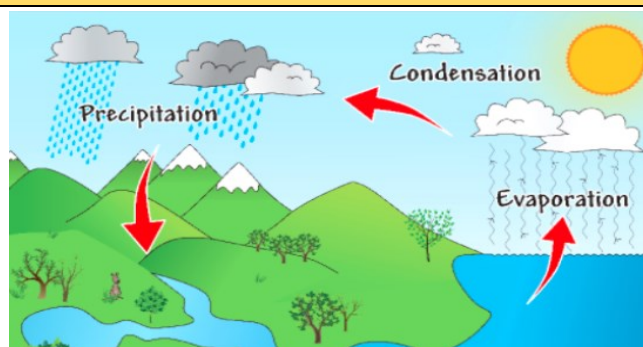
What should I already know?

- The names of some different materials including wood, plastic, glass, metal and rocks,
- Some properties of different materials e.g. opaque, hard, rough, smooth, translucent and transparent,
- The shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching,

What will I know by the end of this unit?

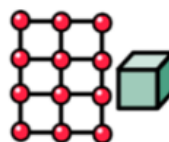
- Particles** are what materials are made from. We cannot see them with our eyes and they behave differently in **solids, liquids and gases**.
- There is only a certain amount of water on the planet Earth. It isn't used up' - it just moves around. This is the **water cycle**. It is vital for life on Earth because it supplies the land with fresh water, and is based around water changing state. There is no start or end to a cycle.
- Liquid water **evaporates** into water vapour. Eventually, water vapour gets colder and turns back into liquid. These are the clouds and this is called **condensation**. Water falls to the ground as **precipitation**.

Water cycle



Gas, Liquid and Solid particle model

Particles in solids:



Solid materials have a fixed shape and cannot be poured. They have vibrating particles which are closely packed in and form a regular pattern .

Particles in liquids:



In the **liquid** state, materials change shape according to the container, and can be poured. The particles are close together but random .

Particles in gases:



In the **gas** state, particles can escape from open containers. Gases have particles which are spread out and move in all directions.

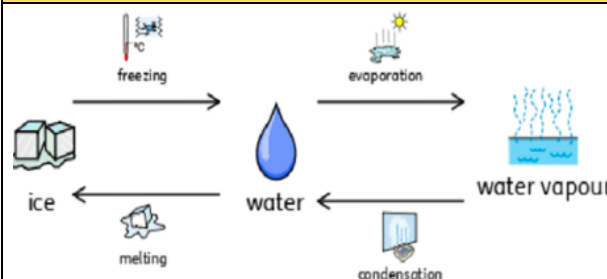
Vocabulary

condensation	The process of gas turning into a liquid.
evaporation	The process of a liquid turning into a gas.
freezing	The process of a liquid turning into a solid.
gas	A state of matter where particles are free to move and move in all directions.
liquid	A state of matter where particles are close together but free to move.
matter	A material, e.g. water, metal.
melting	The process of a solid turning into a liquid.
melting point	The temperature at which a solid mater turns into a liquid.
particles	The small parts a material is made from.
thermometer	A measuring tool to measure how warm it is. Often expressed in Degrees Celsius (= °C).
solid	A state of matter where particles are close together but are limited in movement.
water cycle	It shows the circular process of water in nature.

Working Scientifically

- Observe change in materials as the temperature changes.
- Use tools to measure change.
- Draw representations and write labels.
- Set up and performing simple science experiments, using tools to take measurements, presenting results in tables and graphs and draw conclusions based on outcomes.

Reversible processes



Recording Temperature



A Swedish scientist Celsius came up with measuring the temperature in degrees Celsius in 1742. 0 °C is when water freezes, 100°C is when water starts to boil.

Kelvin (K) and Fahrenheit (F) are different units for temperature.