



Be the Best We Can

Topic: Materials Subject : Science Year: 4 Term:

Buglawton Primary School

What should I already know?

- Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)
- Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)
- Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)
- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

What will I know by the end of the unit?

- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Key Vocabulary

states of matter	Materials can be one of three states: solids , liquids or gases . Some materials can change from one state to another and back again.
solids	These are materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. Solids take up the same amount of space no matter what has happened to them.
liquids	Liquids take the shape of their container. They can change shape but do not change the amount of space they take up. They can flow or be poured.
gases	Gases can spread out to completely fill the container or room they are in. They do not have any fixed shape but they do have a mass.
water vapour	This is water that takes the form of a gas . When water is boiled, it evaporates into a water vapour .

To look at all the planning resources linked to the States of Matter unit, [click here](#).

Key Knowledge

There are three states of matter.

Solid	Liquid	Gas
Particles in a solid are close together and cannot move. They can only vibrate.	Particles in a liquid are close together but can move around each other easily.	Particles in a gas are spread out and can move around very quickly in all directions.

When water and other **liquids** reach a certain temperature, they change state into a **solid** or a **gas**. The temperatures that these changes happen at are called the boiling, **melting** or **freezing** point.

solid 	heat →	liquid 	liquid 	cold →	solid
If a solid is heated to its melting point, it melts and changes to a liquid . This is because the particles start to move faster and faster until they are able to move over and around each other.			When freezing occurs, the particles in the liquid begin to slow down as they get colder and colder. They can then only move gently on the spot, giving them a solid structure.		

What will I be able to do by the end of the unit?

- Can create a concept map, including arrows linking the key vocabulary
- Can name properties of solids, liquids and gases
- Can give everyday examples of melting and freezing
- Can give everyday examples of evaporation and condensation
- Can describe the water cycle
- Can give reasons to justify why something is a solid liquid or gas
- Can give examples of things that melt/freeze and how their melting points vary
- From their observations, can give the melting points of some materials
- Using their data, can explain what affects how quickly a solid melts
- Can measure temperatures using a thermometer
- Can explain why there is condensation on the inside of the hot water cup but on the outside of the icy water cup
- From their data, can explain how to speed up or slow down evaporation

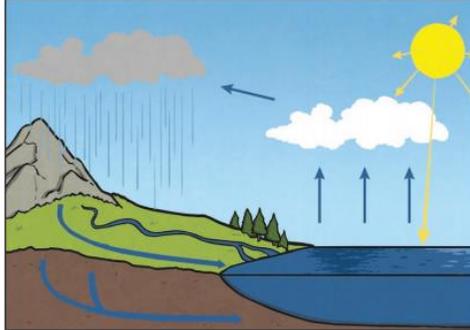
Agreed Real-life Outcome

Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet

Assessment:

Key Vocabulary	
melt	This is when a solid changes to a liquid .
freeze	Liquid turns to a solid during the freezing process.
evaporate	Turn a liquid into a gas .
condense	Turn a gas into a liquid .
precipitation	Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow.

Condensation and evaporation occur within the water cycle.



Evaporation



Evaporation occurs when water turns into **water vapour**. This happens very quickly when the water is hot, like in a kettle, but it can also happen slowly, like a puddle **evaporating** in the warm air.

1. Water from lakes, puddles, rivers and seas is **evaporated** by the sun's heat, turning it into **water vapour**.
2. This **water vapour** rises, then cools down to form water droplets in clouds (**condensation**).
3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (**precipitation**).

Condensation



Condensation is when **water vapour** is cooled down and turns into water. You can see this when droplets of water form on a window. The **water vapour** in the air cools when it touches the cold surface.



Assessment:

Cold task: go through vocabulary: What do they know? Record on post it notes and add to group books

Hot task: update what they know regarding the vocabulary.

Complete Headstart topic test and add in a pocket of group books.

Complete Headstart term tests: end of Autumn, Spring and Summer. Add data to DC PRO

