


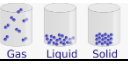








Year 4 Spring 1- Changing state- Is water always a liquid?

Key Vocabulary

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
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
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.
Water cycle		The continuous journey of water from oceans and lakes, to clouds, to rain, to streams, to rivers and back into the ocean again.

Prior knowledge

In Year 2, during the topic 'Uses of Materials' and 'Changing shape' we:

- Identified and compared the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for particular uses
- Found out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Properties of Materials

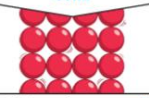
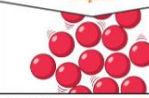
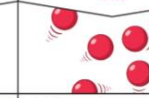
 wood: hard, stiff, strong, opaque, can be carved into any shape.	 glass: waterproof, transparent, hard, smooth.
 plastic: waterproof, strong, can be made to be flexible or stiff, smooth or rough.	 metal: strong, hard, easy to wash.
 paper: lightweight, flexible.	 cardboard: strong, light, stiff.
 fabric: soft, flexible, hard-wearing, can be stretchy, warm, absorbent.	 rubber: hard-wearing, elastic, flexible, strong.

Knowledge and Assessment

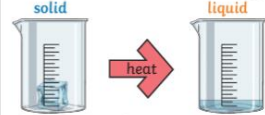
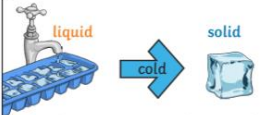
- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- Identify the part played by evaporation and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



Sticky Knowledge

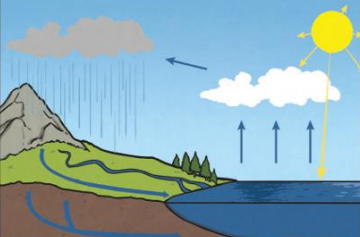
There are three states of matter.

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.

 <p>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.</p>	 <p>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.</p>
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 <p>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.</p>	 <p>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.</p>
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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**).