



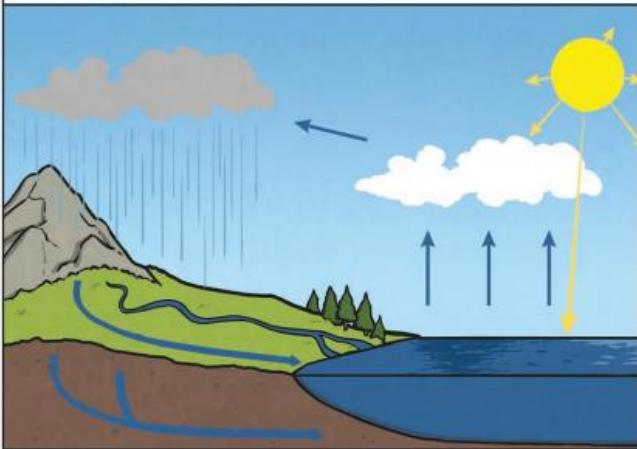
States of Matter

Science KNOWLEDGE ORGANISER

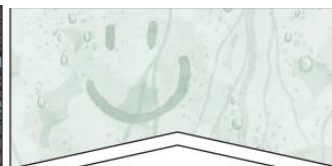
Substantive Knowledge

- Materials can be divided into solids, liquids and gases.
- A solid keeps its shape and has a fixed volume.
- A liquid has a fixed volume but changes in shape to fit the container.
- A gas fills all available space; it has no fixed shape or volume.
- Heating causes solids to **melt** into liquids.
- Heating causes liquids to **evaporate** into gases.
- Cooling causes gases to condense into liquids.
- Cooling causes liquids to **freeze** into solids.
- Each material has its own **temperature** at which they change state.
- The freezing point of water is 0°C.
- Liquid water becomes **water vapour** at 100°C.
- The water cycle stages: 1. Water **evaporates**. 2. **water vapour** condenses into clouds. 3. Water falls as rain (**precipitation**). 4. Water **evaporates** again...

Condensation and evaporation occur within the water cycle.



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.



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.

Key Vocabulary

water vapour	- water in a gaseous form.
melt	- the physical process that occurs when a solid changes into a liquid after heat is applied to it.
freeze	- the physical process that occurs when a liquid changes into a solid after it is cooled.
evaporation	- the process by which a liquid turn into a gas. condensation - the process by which a gas turns back into a liquid.
temperature	the measure of the warmth or coldness of an object or material.
precipitation	water vapour or moisture that falls from the clouds in the form of rain, sleet, snow or hail.
substance	the material, or matter, of which something is made.
particle	small bits of matter that make up everything in the universe.

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.