

**What? (Key Knowledge)**

**Grouping Materials**

Materials fall into four main categories

- Solids
- Liquids
- Gases
- Plasma (Not part of our curriculum)

**How to spot each type of material**

Solids

- Solids stay in one place and can be held.
- Most solids keep their shape. They do not flow like liquids. (Some solids like sand or salt can be poured)
- Solids always take up the same amount of space. They do not spread out like gases.

Liquids

- Liquids can **flow** or be **poured** easily. They are not easy to hold.
- Liquids change their shape depending on the container they are in.

Gases

- Gases are often invisible.
- Gases do not keep their shape. They spread out and change their shape and volume to fill up whatever container they are in.

**Changes of state**

What does changes of state mean?

- What a material changes from one material type to another, we say 'it has changed state.'

**What are the changes of state?**

What	Explanation	Name of process	Example
Solid to Liquid	When a solid <b>melts</b> it changes to a liquid.	Melting	When an ice cube melts.
Liquid to Gas	A liquid <b>evaporates</b> into a gas when it is heated.	Evaporation	When water on a roof is warmed up and turns to steam.
Gas to Liquid	When a gas it cooled it <b>condenses</b> into a liquid.	Condensation	When steam from the shower cools on the mirror it turns to water.
Liquid to Solid	When a liquid <b>freezes</b> it turns into a solid.	Freezing	When the water in a pond freezes, it turns to ice.

**At what temperature does each happen?**

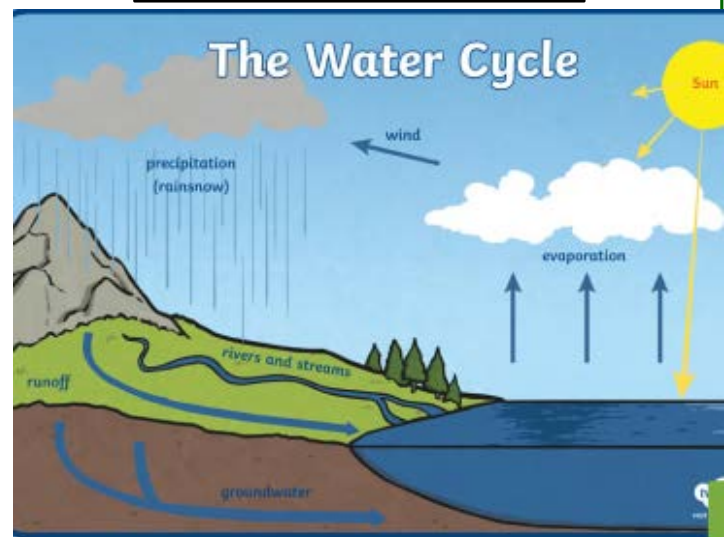
Boiling	<ul style="list-style-type: none"> <li>• Water boils at exactly 100°C (A hot bath is about 40°C)</li> </ul>
Melting	Different solids melt at different temperatures: <ul style="list-style-type: none"> <li>• Ice melts at 0 degrees Celcius (0°C).</li> <li>• (Chocolate melts at about 35°C)</li> </ul>
Freezing	Water freezes at 0 degrees Celcius (0°C).
Evaporation and Condensation	<ul style="list-style-type: none"> <li>• Water can evaporate and condense at any temperature. But, the warmer it is the faster the evaporation takes place.</li> </ul>

**What? (Key Vocabulary)**

Spelling	Definition/Sentence
Temperature	The measure of warmth or coldness of an object.
Celsius	The common scale in the UK for measuring temperature.
Boils	To become so hot (100°C) that water bubbles and then turns into a gas.
Freezes	To become so cold that water freezes.

**Diagrams and Symbols**

**The Water Cycle**



**a. Water evaporates into the air**

The sun heats up water on land, and in rivers, lakes and seas and turns it into water vapour. The water vapour rises into the air.

**b. Water vapour condenses into clouds**

Water vapour in the air cools down and changes back into tiny drops of liquid water, forming clouds.

**c. Water falls as rain**

The clouds get heavy and water falls back to the earth in the form of rain or snow.

**d. Water returns to the sea**

Rain water runs over the land and collects in lakes or rivers, which take it back to the sea. The cycle starts all over again.

**Prior Knowledge**

- To know the three main different types of rock and their characteristics (Y3)
- To understand how fossils are formed (Y3)
- To understand how soil is made, and to identify the different types of soil (Y3)

