

What? (Key Knowledge)	
Grouping Materials	
Materials fall into four main categories	<ul style="list-style-type: none"> Solids Liquids Gases Plasma (Not part of our curriculum)
How to spot each type of material	
Solids	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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.

What? (Key Vocabulary)	
Spelling	Definition/Sentence
solid	a substance or object that is solid rather than liquid and has a fixed shape
liquid	a substance that flows freely but is of constant volume
gas	substance that will expand freely to fill the whole of a container, having no fixed shape (unlike a solid) and no fixed volume (unlike a liquid).
state change	A change of state occurs whenever matter changes from one state to another
evaporation	the process of turning from liquid into gas.
temperature	the intensity of heat present in a substance or object, usually measured by a thermometer
water cycle	a cycle by which water circulates between the earth's oceans, atmosphere and land. Involving evaporation and transpiration.

Take it further at home...

- Experiment with varying melting points of foodstuffs. (Do healthy foods melt quicker/ slower?)
- How can we get washing to dry faster?
- Create a solar water still.
- Fill in the vocabulary chart – try and do this from memory with them!

Changes of state	
What does changes of state mean?	<ul style="list-style-type: none"> 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 melts it changes to a liquid.	Melting	When an ice cube melts.
Liquid to Gas	A liquid evaporates 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 condenses into a liquid.	Condensation	When steam from the shower cools on the mirror it turns to water.
Liquid to Solid	When a liquid freezes it turns into a solid.	Freezing	When the water in a pond freezes, it turns to ice.

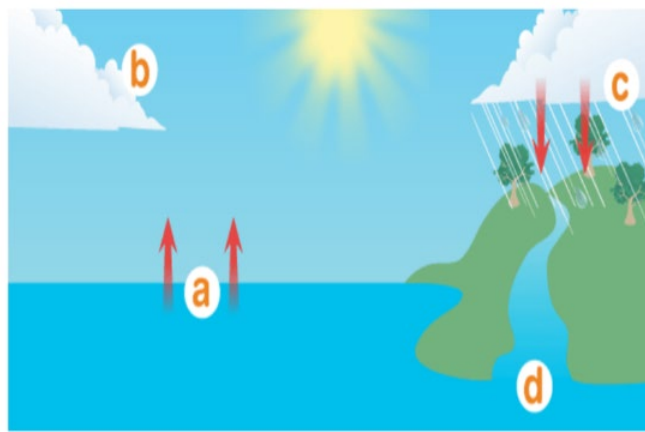
At what temperature does each happen?

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

Diagram and symbols

The Water Cycle

Water on the earth is constantly moving. It is recycled over and over again. This recycling process is called 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

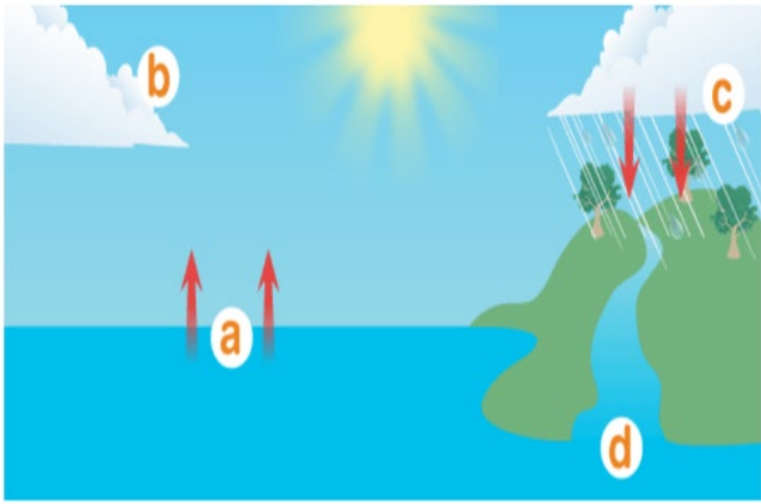
The clouds get heavy and water falls back to the earth in the form of rain or snow.

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.

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