



# Science - States of Matter Unit 4

- I already know:**
- Some materials can change change shape
  - Which materials are able to squash, bend, twist and stretch.

**Useful web links**

- <https://www.bbc.co.uk/bitesize/topics/zity4wx/articles/zfhkwy>
- <https://www.stem.org.uk/resources/community/collection/12345/year-4-states-matter>
- <https://www.theschoolrun.com/what-are-states-matter>

Key Vocabulary	
<b>states of matter</b>	Materials can be one of three states: <b>solids</b> , <b>liquids</b> or <b>gases</b> . Some materials can change from one state to another and back again.
<b>solids</b>	These are materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. <b>Solids</b> take up the same amount of space no matter what has happened to them.
<b>liquids</b>	<b>Liquids</b> 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.
<b>gases</b>	<b>Gases</b> 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.
<b>water vapour</b>	This is water that takes the form of a <b>gas</b> . When water is boiled, it <b>evaporates</b> into a <b>water vapour</b> .

**Key Knowledge**

There are three states of matter.

Solid	Liquid	Gas
Particles in a <b>solid</b> are close together and cannot move. They can only vibrate.	Particles in a <b>liquid</b> are close together but can move around each other easily.	Particles in a <b>gas</b> 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><b>solid</b></p>	<p><b>heat</b></p>	<p><b>liquid</b></p>
<p><b>liquid</b></p>	<p><b>cold</b></p>	<p><b>solid</b></p>

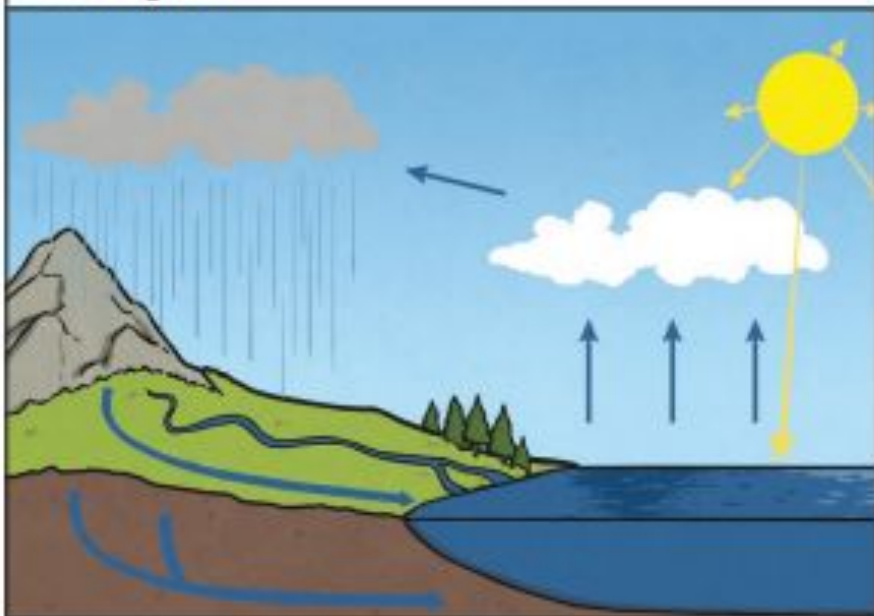
If a **solid** is heated to its **melting** point, it **melts** and changes to a **liquid**. This is because the particles start to move faster and faster until they are able to move over and around each other.

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.

## Key Vocabulary

<b>melt</b>	This is when a <b>solid</b> changes to a <b>liquid</b> .
<b>freeze</b>	<b>Liquid</b> turns to a <b>solid</b> during the <b>freezing</b> process.
<b>evaporate</b>	Turn a <b>liquid</b> into a <b>gas</b> .
<b>condense</b>	Turn a <b>gas</b> into a <b>liquid</b> .
<b>precipitation</b>	<b>Liquid</b> or <b>solid</b> 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.

## 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.

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**).

