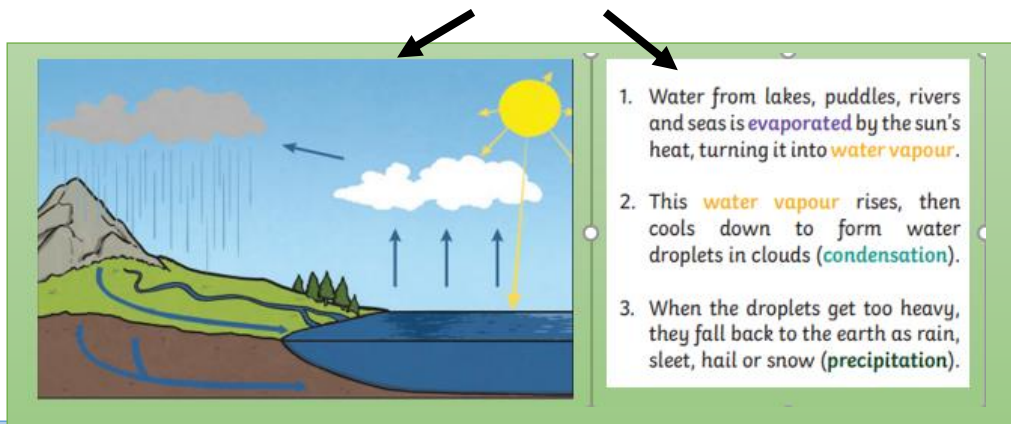


By the end of this topic I should be able to:

- 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.

# States of matter.

## The Water Cycle



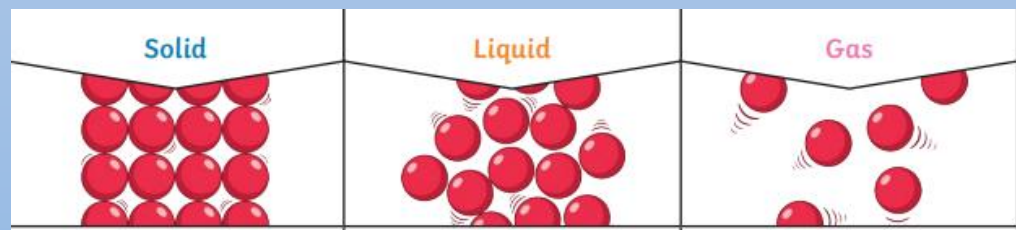
1. Water from lakes, puddles, rivers and seas is **evaporated** by the sun's heat, turning it into **water vapour**.
2. This **water vapour** rises, then cools down to form water droplets in clouds (**condensation**).
3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (**precipitation**).

There are three different states of matter: solids, liquids and gases. These states change when heated or cooled.

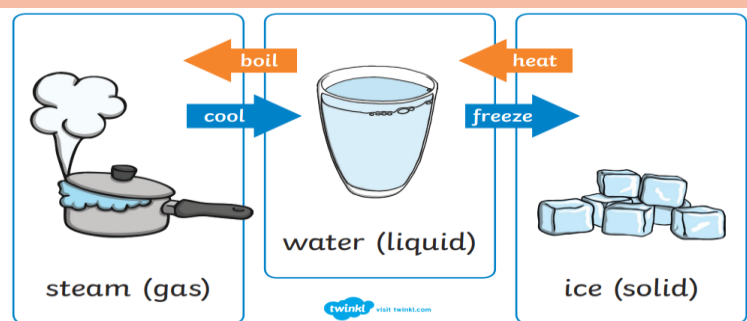
Particles in a **solid** are close together and cannot move. They can only vibrate.

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.



Example of changing states.

## 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 evaporates into a <b>water vapour</b> .                                                                                     |

|                      |                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------|
| <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. |