

## Subject Specific Vocabulary

|                  |   |
|------------------|---|
| Solids           | Materials that keep their shape unless a force is applied to them. They can be hard or soft. Solids take up the same amount of space no matter what has happened to them. |
| Liquids          | 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.                                  |
| Gases            | Gases 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                                       |
| Melting          | When a solid changes to a liquid.   |
| Freezing         | When a liquid changes to a solid.   |
| Evaporation      | When a liquid changes to a gas.   |
| Condensation     | When a gas changes to a liquid.   |
| Temperature      | How hot or cold something is.   |
| States of matter | Materials can be one of three states: solids, liquids or gases. Some materials can change from one state to another and back again  |

### Sticky Knowledge

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 liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling.

## Year 4 – States of Matter

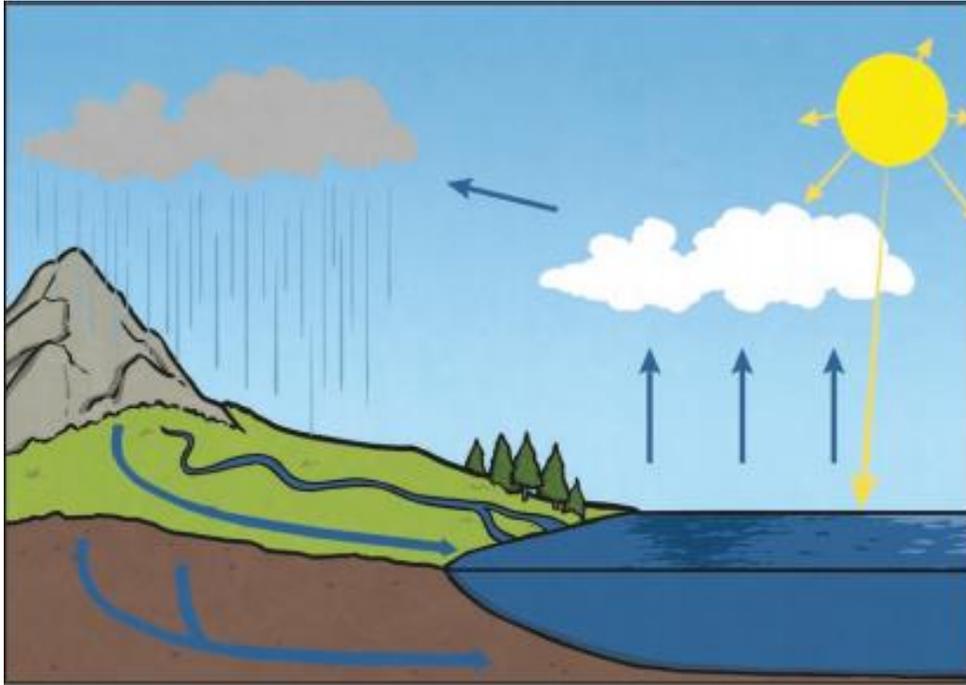
Compare and group materials together, according to whether they are solids, liquids or gases.

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.

(National Curriculum, 2014)





Water at the surface of seas, rivers etc. evaporates into water vapour (a gas).

This rises, cools and condenses back into a liquid forming clouds.

When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation.

This is the water cycle.

## Websites you could look at if you like this topic

Climate kids NASA

<https://climatekids.nasa.gov/water-cycle/>

DK Find out

<https://www.dkfindout.com/uk/science/solids-liquids-and-gases/states-matter/>

BBC Bitesize

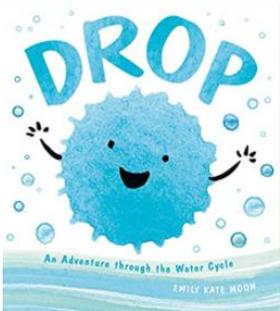
<https://www.bbc.co.uk/bitesize/topics/zkgg87h>

## School Values

Respect – Looking after our planet

Responsibility – Being careful around investigations

British values – Caring about global warming



Drop: An Adventure Through the Water Cycle – Emily Kate



The Solid Truth About States of Matter with Max Axiom – Agnieszka Biskup