Etwall Primary School

States of Matter

Year **3**/4

Materials can be one of three states: solids, liquids or gases.

Key Vocabulary

Solids Materials that keep their shape unless a force is applied to them. Solids take up the same amount of space no matter what has happened to them.

Liquids 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 a container or room they are in. They do not have any fixed shape.

Water Vapour This is water that takes the form of a gas. When water is boiled, it evaporates into a water vapour.

Melt This is when a solid changes to a liquid.

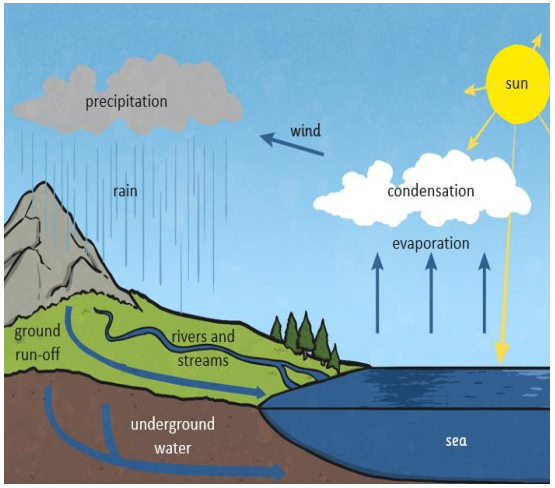
Freeze Liquid turns to a solid during the freezing process.

Evaporate A liquid turning into a gas. 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.

Condense A gas turning into a liquid. 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.

Precipitation Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow. Snow and hail is a solid, sleet has solids and liquid and rain is liquid.

The Water Cycle



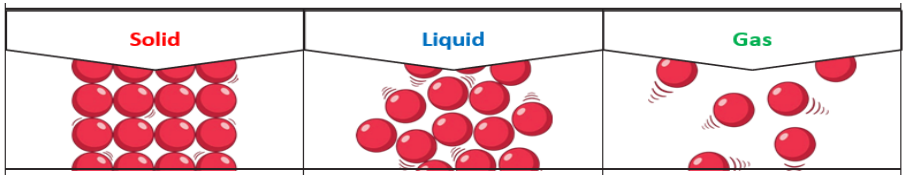
Properties of Materials: Solid

Materials in a solid state keep their shape unless a force is applied to them. Solids can be cut, squashed or twisted. They will not change shape on their own. Solid materials always take up the same amount of space. They do not spread out or flow. Solids do not have to be hard. They can be squashy or soft.

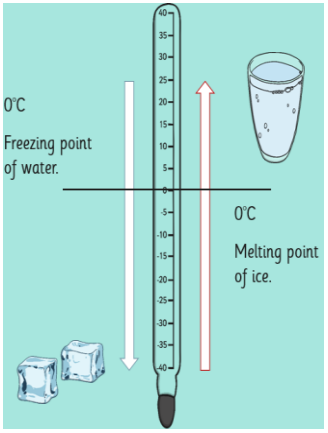
Properties of Materials: Gases

Materials in a gaseous state can spread out to completely fill the container or room they are in. Gases have weight. Gases can be squashed. Gases do not keep their shape. Gases are often invisible

Scientists have found out that all materials are made of very tiny particles. These particles are so small that we cannot see them with our eyes, or even with a microscope! The position and behaviour of the particles is different in solids, liquids and gases.



Solid	Liquid	Gas
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.



Properties of Materials: Liquids

Materials in a liquid state take the shape of the container they are in. Although liquids can change shape, they do not change their volume. This means they still take up the same amount of space. Liquids are pulled down to the bottom of a container by gravity. Liquids can flow or be poured.