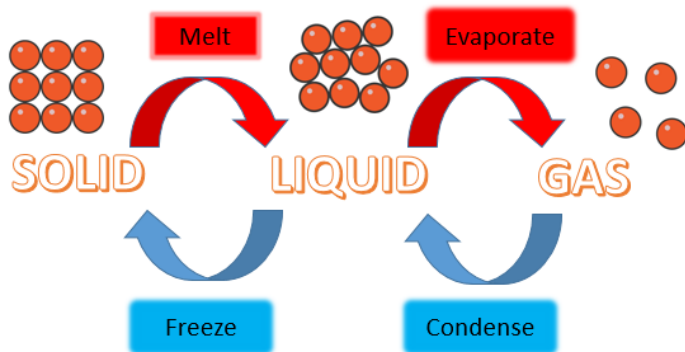




Year 4 – States of matter

A 'mixture' is something that is physically joined together but can be separated again.

Changing State



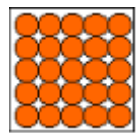

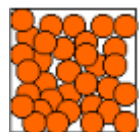

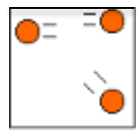

Evaporation happens at any **temperature** but increases as heat energy increases.

Boiling is the rapid **evaporation** of a **liquid** by heating it. Water boils at 100°C – this is known as the **boiling point**.

Freezing turns a **liquid** to a **solid**. Water freezes at 0°C – this is known as the **freezing point**.

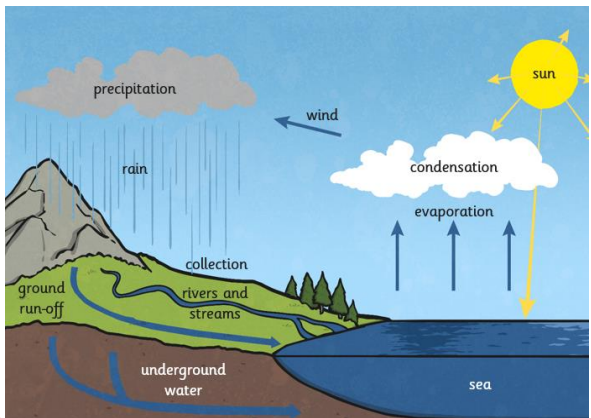


Vital Vocabulary

Key Word	Definition
Solids 	Solid objects that keep their own shape and do not flow in a given temperature Particles are held together in fixed shape. E.g. Ice, rock 
Liquid 	Liquids have an almost-fixed volume, but no set shape. They always take the shape of the bottom of the container they are in. Particles are close but can move. E.g. Water, milk 
Gases 	Gases can move around freely or they might flow to fit a container. They don't have a definite shape. Particles move randomly and are far apart and they fill any container. E.g. carbon dioxide, steam 
Precipitation	The water particles that fall to the ground e.g. rain, snow, sleet, or hail
Condensation	The process by which a gas becomes a liquid GAS → LIQUID
Evaporation	The process by which a liquid turns into a gas LIQUID → GAS
Particles (atoms)	Tiny pieces of a substance too small to see with your eyes
Temperature	<ul style="list-style-type: none"> The average kinetic (movement) energy of the individual particles. A measure of how hot or cold something is
Water vapour	Water in its gas state

The Water Cycle

This is the path that all water follows as it moves around the Earth in different states.



Evaporation
Energy from the sun heats up the surface of the Earth. This causes the surface water in rivers, lakes and oceans to turn into water vapour (a **gas**).

Condensation
As the water vapour rises, it cools and turns back into liquid. This creates clouds.

Precipitation
When too much water has **condensed**, the clouds become too big for the air to hold them. The water then falls as rain, snow, sleet or hail.



John Dalton (1766 – 1844) was an English scientist. He created the atomic theory which states that all matter is made of atoms (the smallest type of **particle**), which are indivisible (cannot be broken down). He was also very interested in the weather and was the first to accurately describe the first part of the water cycle, **evaporation**. He showed that when water heats up, it doesn't just disappear. Instead, it turns into a **gas** (**water vapour**) and goes up into the air.