States of Matter - Year 4

Previous learning:

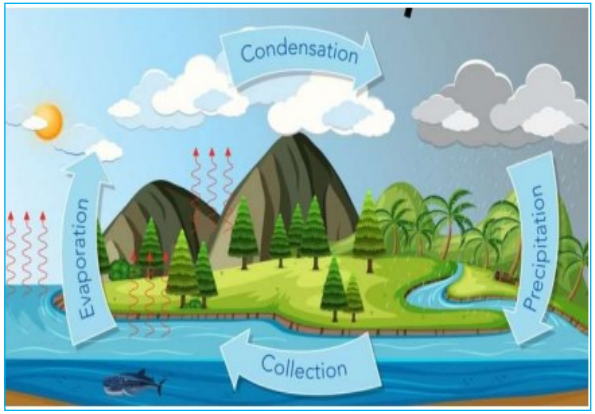
In Year 1, you distinguished between an object and the material it is made from, identifying and naming a variety of everyday materials, including wood, plastic, glass, metal, water and rock. You also described some physical properties of every day materials. In Year 2, you identified and compared the suitability of a variety of materials and found out how the shapes of solid objects can be changed by squashing, bending, twisting and stretching.

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.

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.

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



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).

Future learning:

In Year 5, you will learn about reversible and irreversible changes. You will explore how mixtures can be separated.

Key vocabulary	Definitions
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.
solids	Materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. 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 the container or room they are in. They do not have any fixed shape but they do have a mass.
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	Turn a liquid into a gas.
condense	Turn a gas into a liquid.
precipitation	Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow.