Chemistry

Science: States of Matter

Year 4

Key vocabulary

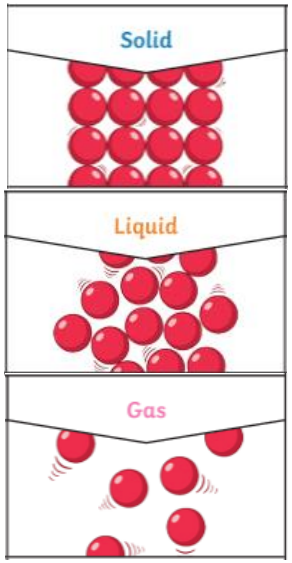
volume	the amount of 3D space an object takes up
freezing	changing from a liquid to a solid
melting	changing from a solid to a liquid through an increase in temperature
boiling	to heat the temperature at which bubbles form and rise to the top of the liquid
evaporation	to turn from liquid into gas
condensation	small drops of liquid which form when water vapour or steam touches a cold surface
precipitation	water that falls to the earth as hail, mist, rain, sleet, or snow
particles	tiny things which make up all objects / materials

This will help us learn about
Changes of materials (Year 5)

We are building our knowledge from
Everyday materials (Year 2)

Key knowledge

- A solid keeps its shape and has a fixed **volume**. You can hold or cut it.
- A liquid has a fixed **volume** but changes in shape to fit the container. A liquid can be poured.
- A gas fills all available space; it has no fixed shape or **volume**.
- Solids like sand can be confused with liquids because they can be poured, but each individual grain has the properties of a solid.
- Matter can be changed.
- **Melting** is a state change from solid to liquid.
- **Freezing** is a state change from liquid to solid. The freezing point of water is 0mC.
- **Boiling** is a change of state from liquid to gas. Water boils at 100mC.
- **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.
- **Condensation** is the change back from a gas to a liquid caused by cooling.
- The **water cycle** is when 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**.



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.