

What should I already know?

Why some materials are used for certain purposes because of their **properties**.
How you can change the shape of materials.

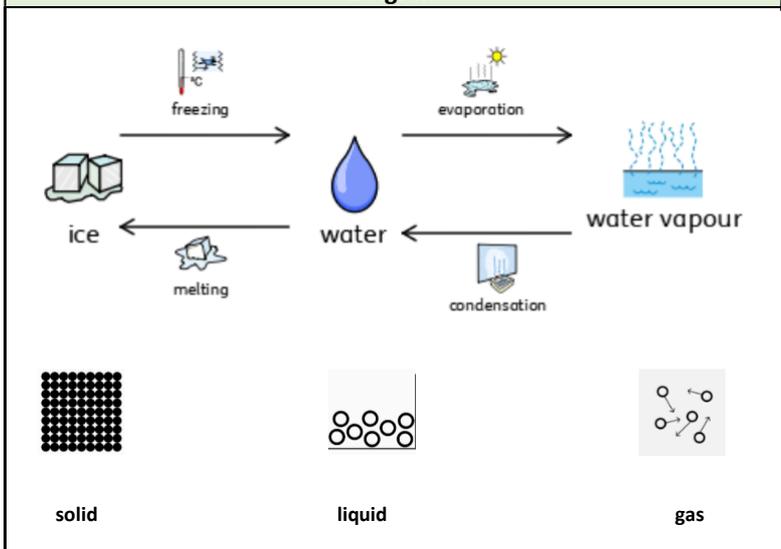
Vocabulary

condensation	small drops of water which form when water vapour or steam touches a cold surface , such as a window
cooling	lowering the temperature of something
evaporation	to turn from liquid into gas ; pass away in the form of vapour .
freezing	If a liquid or a substance containing a liquid freezes , it becomes solid because of low temperatures
freezing point	The freezing point of a particular substance is the temperature at which it freezes . The freezing point of water is 0°C.
gas	a form of matter that is neither liquid nor solid . A gas rapidly spreads out when it is warmed and contracts when it is cooled .
heating	raising the temperature of something
liquid	in a form that flows easily and is neither a solid nor a gas .
melting	to change from a solid to a liquid state through heat or pressure
melting point	The melting point of a particular substance is the temperature at which it melts .
particles	a tiny amount or small piece
precipitation	rain, snow, sleet, dew, etc, formed by condensation of water vapour in the atmosphere
process	a series of actions used to produce something or reach a goal.
properties	the ways in which an object behaves
solid	having a firm shape or form that can be measured in length, width, and height; not like a liquid or a gas
temperature	a measure of how hot or cold something is
vibrations	when something vibrates , it shakes with repeated small, quick movements
water cycle	the process by which water on the earth evaporates , then condenses in the atmosphere, and then returns to earth in the form of precipitation .
water vapour	water in the gaseous state, esp when due to evaporation at a temperature below the boiling point

What will I know by the end of the unit?

<p>What is a particle?</p>	<p>Particles are what materials are made from.</p> <p>They are so small that we cannot see them with our eyes.</p> <p>The properties of a substance depend on what its particles are like, how they move and how they are arranged</p> <p>Particles behave differently in solids, liquids and gases.</p>
<p>What is a solid?</p>	<p>In the solid state, the material holds its shape.</p> <p>Solids have vibrating particles which are closely packed in and form a regular pattern.</p> <p>This explains the fixed shape of a solid and why it can't be poured.</p> <p>Solids always take up the same amount of space.</p>
<p>What is a liquid?</p>	<p>In the liquid state, the material holds the shape of the container it is in.</p> <p>This means that liquids can change shape, depending on the container.</p> <p>Liquids have particles which are close together but random.</p> <p>Liquid particles can move over each other.</p> <p>Liquids can be poured.</p>
<p>What is a gas?</p>	<p>In the gas state, particles can escape from open containers.</p> <p>Gases have particles which are spread out and move in all directions.</p>

Diagram



What happens to the **particles** in water when it is **heated** or **cooled**?

When water (in its **liquid** form) is **heated**, the particles start to move faster and faster until they have enough energy to move about more freely. The water has **evaporated** into a **water vapour**.

When water is **cooled**, the particles start to slow down until a solid structure (ice) is formed. The water has **frozen**.

The **temperature** at which water turns to ice is called the **freezing point**. This happens at 0°C.

What is the **water cycle**?

(see separate knowledge organiser Geography - The Water Cycle)

Investigate!

- Group materials according to their states.
- Explain the **particle** structure of **solids, liquids** and **gases**.
- Explore the effect of **temperature** on substances such as chocolate, butter, cream. Compare their **melting points** and place them in a table. Research the **temperature** at which materials change state, for example, when iron **melts** or when oxygen **condenses** into a **liquid**.
- Observe and record **evaporation** over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of **temperature** on washing drying or snowmen melting.
- Analyse and interpret different forms of data (tables, graphs) to show the effects of **temperature** on states of matter.
- Present what you know about the water cycle using a variety of skills using appropriate vocabulary (The Water Cycle Knowledge Organiser).
- Observe **evaporation** and **condensation** in action by using bowls of water and mirrors /glass (The Water Cycle Knowledge Organiser).