

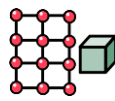

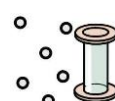
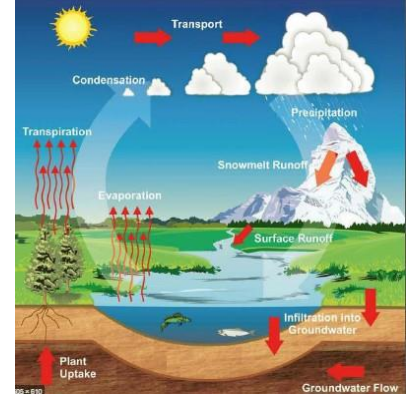
What should I already know?

- Why some materials are used for certain purposes because of their **properties**
- The **water cycle**, and the **processes** of **evaporation**, **condensation** and **precipitation**.

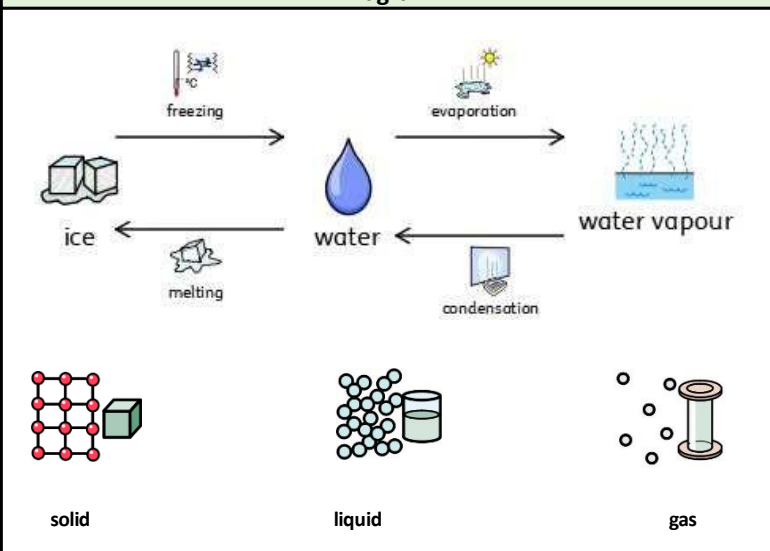
Vocabulary

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>	<ul style="list-style-type: none"> • Particles are what materials are made from. • They are so small that we cannot see them with our eyes. • The properties of a substance depend on what its particles are like, how they move and how they are arranged • Particles behave differently in solids, liquids and gases.
<p>What is a solid?</p> 	<ul style="list-style-type: none"> • In the solid state, the material holds its shape. • Solids have vibrating particles which are closely packed in and form a regular pattern. • This explains the fixed shape of a solid and why it can't be poured. • Solids always take up the same amount of space.
<p>What is a liquid?</p> 	<ul style="list-style-type: none"> • In the liquid state, the material holds the shape of the container it is in. • This means that liquids can change shape, depending on the container. • Liquids have particles which are close together but random. • Liquid particles can move over each other. • Liquids can be poured.
<p>What is a gas?</p> 	<ul style="list-style-type: none"> • In the gas state, particles can escape from open containers. • Gases have particles which are spread out and move in all directions.
<p>What happens to the particles in water when it is heated or cooled?</p>	<ul style="list-style-type: none"> • 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.
<p>What is the water cycle?</p> <p>(see separate knowledge organiser Geography- The Water Cycle)</p>	

Diagram



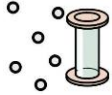
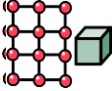
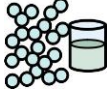
Investigate!

- 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).

Question 1: The particles in a solid:	Start of unit:	End of unit:
are closely packed together and vibrate		
move freely over each other within a container in which they are held		
can be poured		
are very spread out and can escape an open container		


Question 2: The particles in a liquid (tick two):	Start of unit:	End of unit:
are closely packed together and vibrate		
move freely over each other within a container in which they are held		
can be poured		
are very spread out and can escape an open container		

Question 3: The particles in a gas:	Start of unit:	End of unit:
are closely packed together and vibrate		
move freely over each other within a container in which they are held		
can be poured		
are very spread out and can escape an open container		

Question 4: Match the states to their particle structure:	Start of unit:	End of unit:
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">solid</div>  </div>		
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">liquid</div>  </div>		
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">gas</div>  </div>		

Question 5: What is the freezing point of water?	Start of unit:	End of unit:

Question 6: Name the process that describes the change from water to ice.	Start of unit:	End of unit:

Question 7: Write solid, liquid or gas to label each part of the diagram.	Start of unit:	End of unit:
		

Question 8: Match these changes to the scientific name for the process.	Start of unit:	End of unit:
<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">ice turns to water</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">condensation</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">water turns to water vapour</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">evaporation</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">water vapour turns to water</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">melting</div> </div>		

Question 9: Solids, liquids and gases have different properties. Indicate using an S, L or G, which state these properties apply to.	Start of unit:	End of unit:
keeps its own shape		
can be poured		
flows easily through a pipe		
takes the shape of the container it is in		
can escape from an open container		

Question 10: Explain why puddles get smaller after it has rained.	Start of unit:	End of unit: