

Preston Primary School Knowledge Organiser

Topic: Science - States of matter.

Term: Autumn 1

Year: Unit 3

Duration: 7 Weeks

The Powerful Knowledge we will take away from this Learning Enquiry (what children will be learning):

 	<ul style="list-style-type: none"> • There are three states of matter: solids, liquids, and gases. • Everything around us falls into one of these categories. • Solids can include solid objects from chocolate to wood. • Gases can include any gases from our breath (carbon dioxide) to the air that we breathe in. • Liquids can include any liquid from water to milk. • These states of matter can sometimes be changed through a change in the temperature. • Condensation and evaporation are two ways that states of matter can change and are in seen in the water cycle.
	<ul style="list-style-type: none"> • A fair test must have only one changing variable (you are only changing one thing). • Children will learn to pose scientific questions and plan experiments to find the answer. • Children will sort and classify examples of the three states of matter.

Our Key Vocabulary:

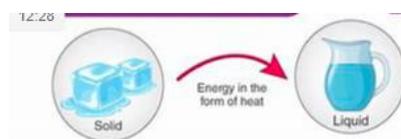
Word	Meaning
Solid	A solid has a definite shape that remains the same unless another force acts upon it.
Liquid	A liquid has no fixed shape but does have a volume. It takes on the shape of its container.
Gases	A gas has no fixed shape or volume and will always spread out within the container it is in.
Particle	The smallest pieces of matter (solid, liquid or gas) that make up everything around us.
Melting	When heat is applied to a solid the particles move apart, breaking the solid structure and becoming a liquid.
Evaporation	When heat is applied to a liquid the particles move around even faster, breaking away from each other and forming a gas or vapour. When this happens to all the particles it is called boiling .
Condensation	When a gas has heat removed from it the particles in the vapour slow down, come together and loosely bond, returning to the liquid state.
The water cycle	The water cycle depends upon the processes of evaporation and condensation. Evaporation occurs on the oceans, land, lakes, and rivers. Some of the cooled water vapour condenses and clouds containing water droplets or ice are formed. This then falls as rain.

Steps in learning	
	<p>To identify the three states of matter (solids, liquids, and gases). To understand how the particles present in the three states of matter. To compare the three states of matter.</p>
 	<p>How do you plan and carry out a fair test? Why is a fair test important? How can we record our test results?</p> <p>Which liquid moves the fastest? Why might this be?</p>
	<p>Experiment to understand the effect of temperature on states of matter.</p> <p>What happens to gas when it is heated?</p> <p>What happens to some solids when heated? Does this happen to all?</p>
	<p>What role do condensation and evaporation play in the water cycle? How can we link this to our learning about states of matter?</p>

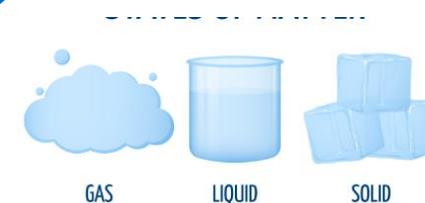
What I already know:

In Key Stage One, children be able to identify and name a variety of different everyday materials. They will learn about the properties of these materials and will compare these to others.

In Unit 4, children will use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving, and evaporating. They will understand that some changes are reversible, and some are irreversible.



This image shows how a solid (ice) can change state to a liquid (water). This happens when the ice warms up.



This image shows the difference between the states of matter. You can pick a solid up but not a gas. A liquid needs to be in a container.

Website links:

[Solid, liquid and gases - BBC Bitesize](#)

This web link is interactive and shows the differences between the three states of matter.

[Changing States - BBC Bitesize](#)

This link has lots of information about boiling, cooling, evaporation, and melting. This is known as changing states.