

Remember
in Year 2
we learned:

The
properties
of
everyday
materials

Year 4

**States of
matter**

Later, in
Year 5, you
will learn:

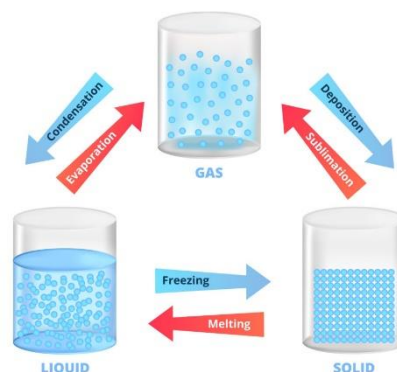
Grouping
materials
in different
criterion

Knowledge

By the end of this unit of study, pupils will be able to:

One	To recognise the difference between a solid, liquid and gas and to be able to explain these differences	
Two	To group and sort materials deciding whether they are solids, liquids or gases	
Three	Use a venn diagram to explore and identify materials that don't fit in to just one category	
Four	Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).	
Five	Identify the part played by evaporation and condensation in the water cycle	
Six	Understand that temperature has an effect on the rate of evaporation and condensation	

CHANGING STATES OF MATTER



Key Vocabulary

solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle

Key Learning

A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid.

Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. 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. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling.

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. This is the water cycle.