



States of Matter

KNOWLEDGE MAT

YEAR 4
SCIENCE

KEY KNOWLEDGE

Know that things are composed of a material in one of three states of matter: solid, liquid or gas.

Know that things are made of particles (tiny building blocks) and that these are organised differently in different states.

Know that materials can change state when temperature changes.

Know that when solids turn into liquids, this is called melting and the reverse process is called freezing.

Know that when liquids turn into gases, this is called evaporation and the reverse process is called condensation.

Know that the melting point of water is 0°C and the boiling point 100°C.

Know that water flows around our world in a continuous process called the water cycle.

Know that there are bonds between particles in a solid; as temperature increases, these bonds are partially overcome as the particles absorb energy and solids can change into liquids; with a further increase in temperature the particles become even more energetic and the bonds are overcome entirely so the liquid changes into a gas.

KEY VOCABULARY

bond -joined securely to something else

condensation- turn a gas into a liquid.

evaporation- turns a liquid into a gas.

freeze- Liquid turns to a solid during the freezing process

precipitation- liquid or solid particles that fall from a cloud as rain, sleet, hail or snow.

boiling point- the temperature at which a liquid boils and turns to vapour

melting point- the temperature at which a given solid will melt

states of matter- materials can be one of three states: solids, liquids or gases. Some materials can change from one state to another and back again.

liquid- a substance that flows freely but is of constant volume

gas- a substance which will expand freely to fill a whole container and has no fixed shape or volume.

thermometer- an instrument for measuring and indicating temperature.

water cycle- the cycle of processes by which water circulates between the earth's oceans, atmosphere, and land

water vapour- This is water that takes the form of a gas. When water is boiled, it evaporates into a water vapour.



THE WATER CYCLE



1. Water from lakes, puddles, rivers and seas is evaporated by the sun's heat, turning it into water vapour.

2. This water vapour rises, then cools down to form water droplets in clouds (condensation).

3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (precipitation).

KEY KNOWLEDGE

Evaporation occurs when water turns into water vapour. This happens very quickly when the water is hot, like in a kettle, but it can also happen slowly, like a puddle evaporating in the warm air.



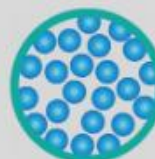
Condensation is when water vapour is cooled down and turns into water. You can see this when droplets of water form on a window. The water vapour in the air cools when it touches the condensation cold surface.

KEY KNOWLEDGE

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.

