






Knowledge Organiser Year 4 Science: States of Matter

Concept: Chemistry

Key Vocabulary	
states of matter	Materials can be one of three states: solids, liquids or gases. Some materials can change state.
solids	These are materials that keep their shape unless a force is applied. They can be hard, soft or squishy. Solids take up that same amount of space no matter what has happened to them.
liquids	Liquids take the shape of their container. They can change shape but do not change the amount of space they take up. They can flow and be poured.
gases	Gases can spread out to completely fill their container. They do not have a fixed shape.
water vapour	This is water that takes the form of a gas.
melt	This is when a solid changes to liquid.
freeze	Liquid turns into a solid during the freezing process.
evaporation	the process of turning a liquid into a gas.
condensation	the process of turning a gas into a liquid.

Solid	Liquid	Gas
		
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.

Evaporation	Condensation
	
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 cold surface.



LO: to recognise solids, liquids and gases.

What is a solid?

What is a liquid?

What is a gas?

LO: to recognise solids, liquids and gases.

A solid is a material that holds its shape (unless force is applied). The particles are close together. They cannot move but can vibrate.

A liquid can take the shape of its container. The particles are close together but are able to easily move.

A gas can spread out. They have no fixed shape. The particles can move quickly and in all directions.

LO: to recognise solids, liquids and gases.

<https://www.youtube.com/watch?v=c3X7pIFYky4>

LO: to recognise solids, liquids and gases.

Solid

Keeps its shape

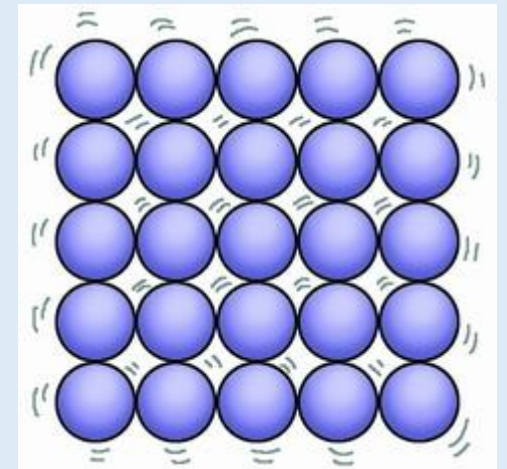
Cannot flow

Has a fixed volume

Cannot be compressed

Cannot move through it

Particles packed close together and can only vibrate



LO: to recognise solids, liquids and gases.

Liquid

Spreads out to fill the bottom of a container

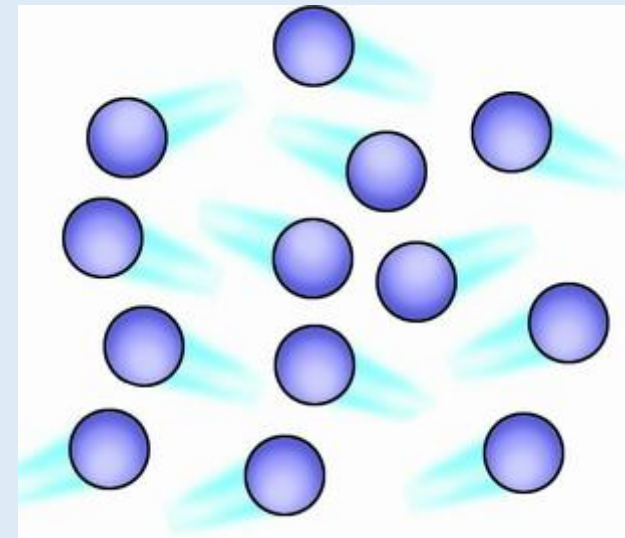
Can flow

Has a fixed volume

Cannot be compressed easily

Can move through it

Particles can move or slide over each other



LO: to recognise solids, liquids and gases.

Gas

Spreads out to fill any space

Cannot flow

Does not have a fixed volume

Can be compressed

Can move through it

Particles can move very freely and quickly

