Year 4 Knowledge Organiser

Subject: Science

Topic Question **What State Is It In?**

Cherry Hinton C of E Primary School

Agape
Courage
Thankfulness

What I have learnt already

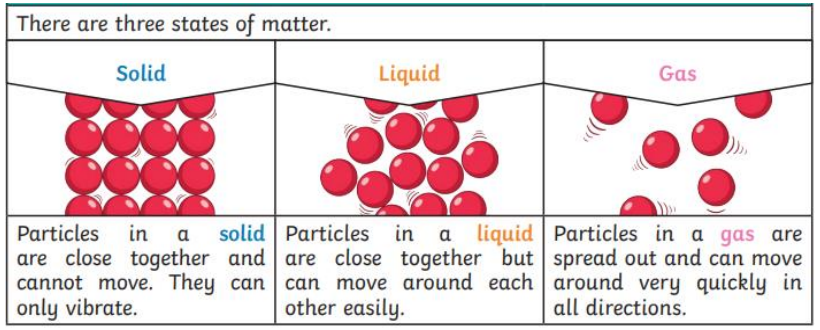
1	Materials	How to describe, compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1)
2	Materials	How the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2)

Facts I need to learn now

1	States of matter	Things are composed of a material in one of three states of matter: solid, liquid or gas
2	Particles	Things are made of particles (tiny building blocks) and that these are organised differently in different states
3	Changes of state	Materials can change state when temperature changes
4	Changes of state	When solids turn into liquids, this is called melting and the reverse process is called freezing
5	Changes of state	When liquids turn into gases, this is called evaporation and the reverse process is called condensation
6	Changes of state	The melting point of water is 0°C and the boiling point 100°C, but when a solid turns into a gas without passing through the liquid state, this is called sublimation
7	Reasons for changes of state	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

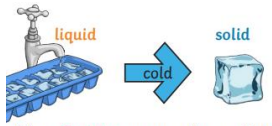
What I will learn next

1	Properties and changes of materials	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5)
2	Properties and changes of materials	How to demonstrate that dissolving, mixing and changes of state are reversible changes. (Y5)
3	Properties and changes of materials	Use my knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5)

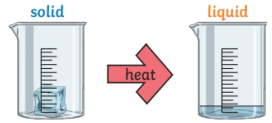


Vocabulary (Words I need to know)

1	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
2	Solids	These are materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. Solids take up the same amount of space no matter what has happened to them.
3	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 or be poured.
4	Gases	Gases can spread out to completely fill the container or room they are in. They do not have any fixed shape but they do have a mass
5	Melt	When a solid changes to a liquid.
6	Solidify	When something becomes hard or solid
7	Freeze	Liquid turns to a solid during the freezing process.
8	Melting point	The temperature at which a given solid will melt.
9	Boiling point	The temperature at which a liquid boils and turns into vapour



When freezing occurs, the particles in the liquid begin to slow down as they get colder and colder. They can then only move gently on the spot, giving them a solid structure.



If a solid is heated to its melting point, it melts and changes to a liquid. This is because the particles start to move faster and faster until they are able to move over and around each other.

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.

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