

Cunningham Hill Junior School - Science Knowledge Organiser - Year 4 - States of Matter

Key Vocabulary:		
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	solid	These materials keep their shape unless a force is applied. They can be hard, soft or even squashy. Solids take up the same amount of space no matter what has happened to them.
3	liquid	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	evaporation	Turn a liquid into a gas .
5	gases	Gases can spread out to fill the container or room they are in completely. They do not have any fixed shape, but they do have a mass.
6	condensation	Turn a gas into a liquid .
7	precipitation	Liquid or solid particles that fall from a cloud as a rain, sleet, hail or snow.
8	melt	This is when a solid changes to a liquid .
9	freeze	Liquid turns to a solid during the freezing process.
10	particles	Particles are tiny bits of matter that make up everything in the universe.

States of Matter:		
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.

Water Cycle:		
Condensation and evaporation occur within the water cycle.		
A - Water is evaporated by the sun's heat, turning it into water vapour.	B - Water vapour rises, then cools down to form water droplets in clouds (condensation).	C - When the clouds become too heavy, the water droplets fall as rain, sleet, hail or snow (precipitation).

Evaporation:
<p>Evaporation occurs when water turns into water vapour. This happens very quickly when the water is not, like in a kettle, but it can also happen slowly, like a puddle evaporating in the warm air.</p>

Condensation:
<p>Condensation occurs when water vapour cools 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.</p>

Scientist Study:	
<p>The scientist Alfred Nobel, after whom the Nobel Prize is so called, was born in Stockholm, Sweden in 1833.</p>	
<p>"If I have a thousand ideas and only one turns out to be good, I am satisfied."</p>	

Heating and Cooling:		
When water and other liquids reach a certain temperature they change state into a solid or a gas . The temperature that these changes happen at are called boiling, melting or freezing point.		
<p>← Getting Colder</p> <p>ice</p>	<p>→ Evaporation</p> <p>water</p>	<p>→ Getting Hotter</p> <p>water vapour</p>
<p>If a solid is heated to its melting point, it melts and changes into a liquid. This is because the particles start to move faster and faster until they are able to move over and around each other.</p>	<p>When freezing occurs, the particles in the liquid begin to slow down as they get colder and colder. They can only move gently on the spot, giving them a solid structure.</p>	<p>Liquids become gas when they are heated. This happens quicker if a liquid reaches boiling point (for water 100°C). If the gas cools, it will return to a liquid this is called condensation.</p>

