TPS Science Knowledge Organiser — Year 4 — States of Matter — Summer

Be a physicist. a meteorologis, a materials scientsist..

solid 	A solid keeps its shape and has a fixed volume.
liquid 	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.
gas 	A gas fills all available space; it has no fixed shape or volume
melting point	The specific **temperature** at which a material melts as it is heated..
boiling point	The specific **temperature** at which bubbles of **gas** can be seen in a **liquid** as it is heated.
temperature	A measure of how hot or cold something is. It can be measured with a thermometer in

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.

Matter makes up our planet and the whole universe. On Earth, all matter exists in one of three main states: solid, liquid or gas.

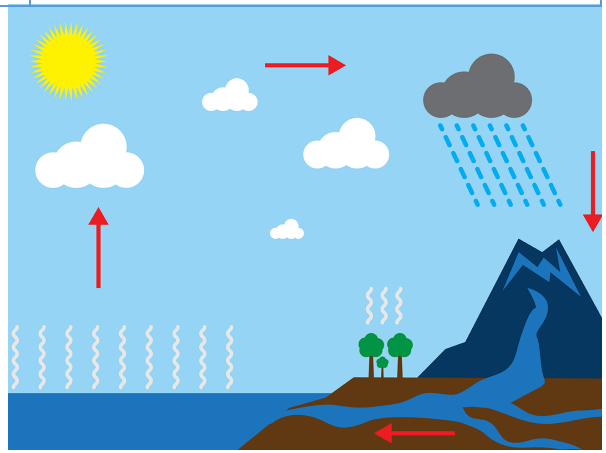
state change Depending on it's **temperature** matter can change from one state (**solid** or **liquid** or **gas**) to another.

Process	Change of state	Explanation
melting	solid to liquid.	When a solid melts it changes to a liquid.
freezing .	liquid to solid.	When a liquid freezes it turns into a solid. The freezing point of water is 0°C.
boiling	liquid to gas	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	liquid to gas	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	gas to liquid	When a gas it cooled it condenses into a liquid.

water cycle	The way water moves around the planet by **changing state**.

The water vapour rises, cools and **condenses** back into a liquid (water droplets) forming clouds.

At the surface of seas, rivers etc. liquid water **evaporates** into water vapour (an invisible gas).



When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as precipitation (rain, snow, sleet etc.) and drain back into rivers, lakes etc. .