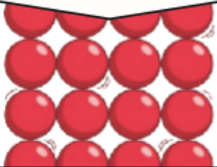
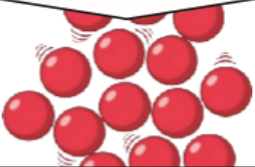
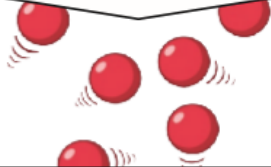


Year 4 Summer Term Science Knowledge Organiser

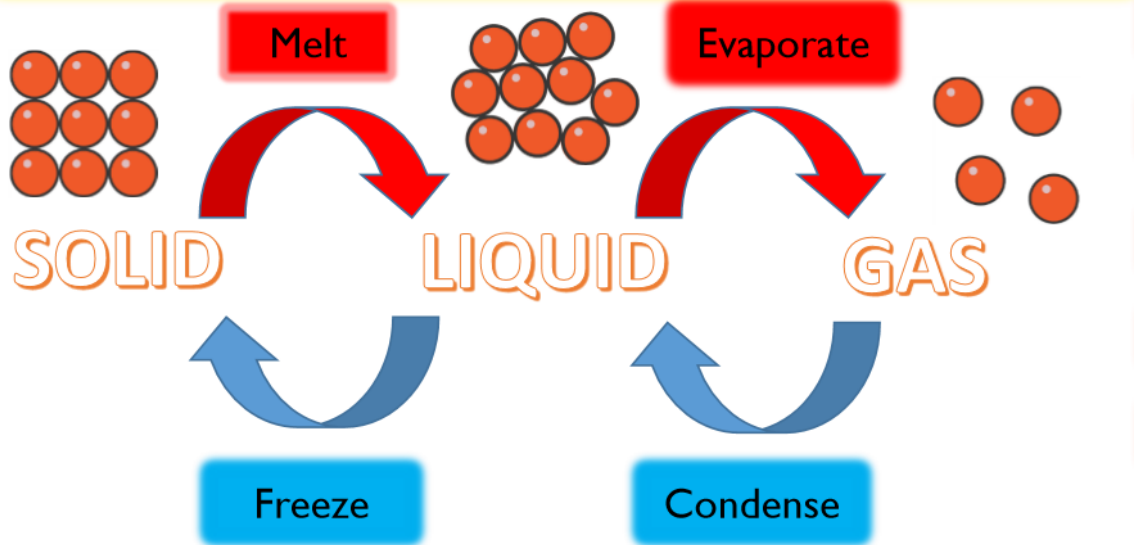
KEY QUESTION: What states to materials exist in and how do we change the state of a material?

Key Knowledge		
There are three 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.

States of Matter Vocabulary

condensation	heating	process
cooling	liquid	solid
evaporation	melting	temperature
freezing	Melting point	vibrations
Freezing point	particles	Water cycle
gas	precipitation	Water vapour

CHANGING STATES OF MATERIALS



SOLID

Stays the same shape
 Can be held in your hands
 Can be cut into a new shape

Examples – wood, metal, rock, ice



LIQUID

Often invisible
 Always fills its container
 Shape & volume change

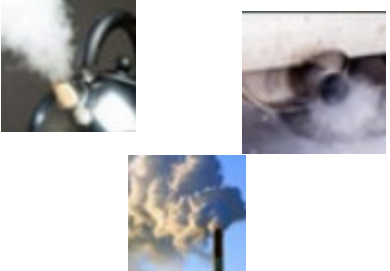
Examples – oxygen, hydrogen, carbon dioxide



GAS

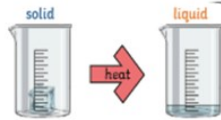
Flows and can be poured
 Changes shape to its container
 Volume never changes

Examples – water, juice, oil



CHANGING STATE

Solids, liquids and gases are called the three states of matter. Materials can be changed from one state to another by heating or cooling.

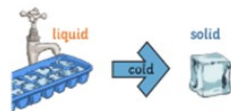


Heating

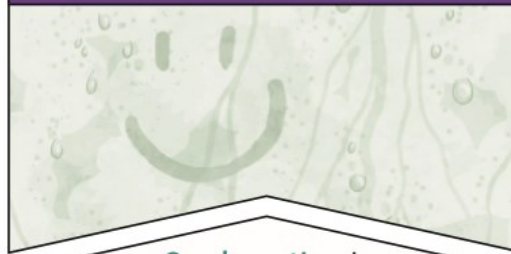
If ice (solid) is heated, it changes to water (liquid). This change is called melting. Water (liquid) can change to water vapour (gas). This is called evaporation. If water (liquid) is heated until it boils, it changes to water vapour (gas) very quickly. Water boils at 100°C.

Cooling

If water vapour (gas) is cooled, it changes to water (liquid). This change is called condensing. If water (liquid) is cooled, it changes to ice (solid). This change is called freezing. Water freezes at 0°C.



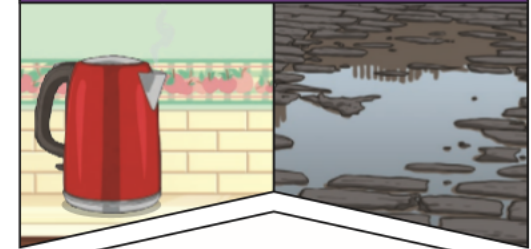
Condensation



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.

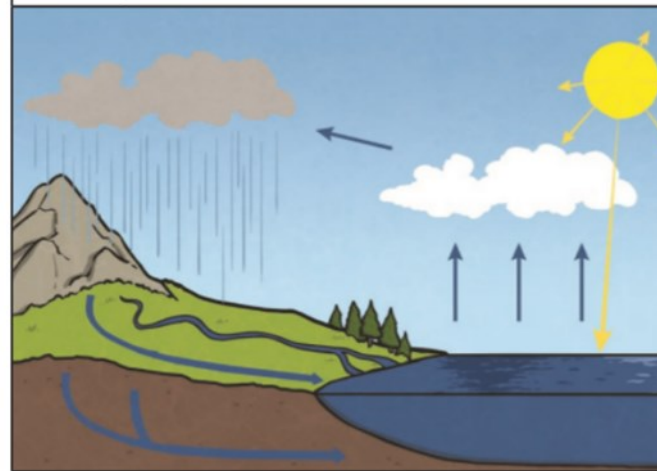
Evaporation



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 and **evaporation** occur within 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**).

Activities to complete at home. Bring in your work over the next 4 weeks so it can be celebrated and shared .

1. Use beads, poms, poms or even cereal to create models to represent the molecules in solids, liquids and gases.
2. Create a crossword with clues to show the definition of the key science vocabulary linked to states of matter.
3. Make a paper plate cycle to represent the main stages of the water cycle. Add labels and explanations.
4. Practically investigate states of matter. <https://lifestyle.howstuffworks.com/crafts/science-projects/science-projects-for-kids-states-of-matter2.htm>

