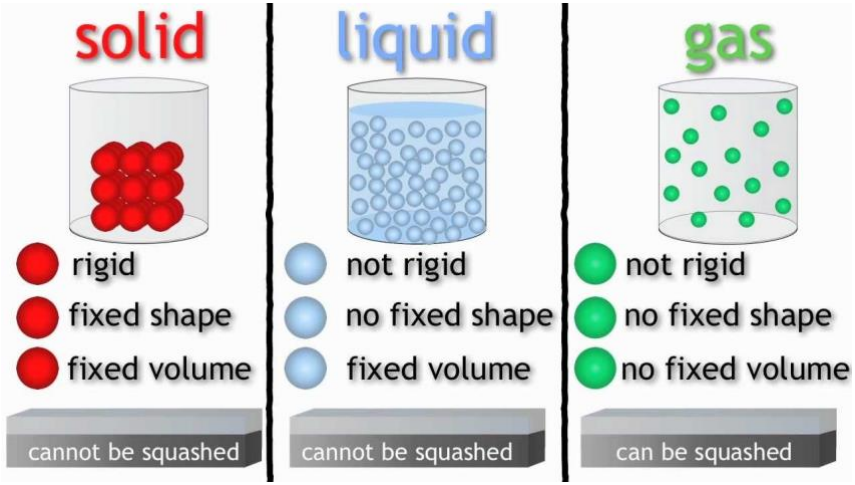
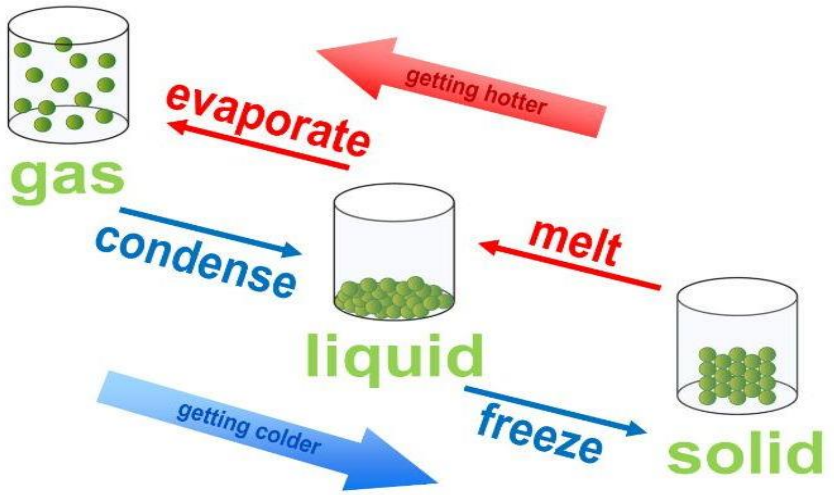
Springbank Primary School Knowledge Organiser		
Year 4	**Term: Summer term 1**	**Focus – States of Matter**

Vocabulary	Definitions	Diagrams
Particles	All matter is made up of tiny particles (atoms or molecules) that are invisible to see except with the most powerful microscopes.	**States of matter** 
Solids	In solids the particles sit close together and are tightly packed so they cannot move much and say in the same position. This means that solids keep their shape well.	
Liquids	In liquids like water the particles sit slightly apart from one another and they can move around each other. This means that liquids can flow and be poured and take on the shape of any container.	
Gasses	In gasses the particles are far apart and they can move freely. This means that gasses can spread out into larger areas but the particles can also be compressed smaller areas such as the inside of a balloon. Gasses also take on the shape of any container.	
Volume and shape	Volume is the amount of space something takes up and the shape is the outline of something. • Solids have a fixed volume and a definite shape. • Liquids have fixed volume but its shape can change. • Gasses do not have a fixed volume or shape.	
Grains and powders	Some solids like sand, sugar or flour are made up of tiny grains or are a powder. Grains and powders can be poured like a liquid because the grains can move over each other. However they are solids because the shape of the grains are fixed and con not be changed.	

Changing state	Some materials stay in one state as a solid, liquid or gas. Others change state when they are heated or cooled, e.g. water to ice or to water vapour.
Freezing	Freezing is when a liquid changes into a solid, e.g. water (liquid) into ice (solid), as it cools is cannot flow and its shape becomes fixed.
Melting	Melting is when a solid changes into a liquid, e.g. into ice (solid) into water (liquid), as it gets warmer an ice cube starts to lose its shape and water starts to flow.
Evaporation	Evaporation is when a liquid changes into a gas, If a liquid heats up its particles spread out until it becomes a gas. For example water turns into water vapour (stream) when it is heated as a kettle boils.
Condensation	Condensation is when a gas changes into a liquid, it is the opposite of evaporation e.g. water vapour (gas) cools and turns into water droplets (liquid) on a cold window or mirror in the bathroom.
Degrees Celsius (°C)	Temperature is measured in Degrees Celsius (°C). The Celsius scale is based on the melting and boiling point of water. Water freezes/melts at 0°C and boils at 100°C.
The water cycle	The water cycle is the way water moves around the planet by changing state. 1. Water in the seas and oceans warms up and evaporates to form water vapour. 2. The water vapour in the atmosphere cools and condenses to form clouds. 3. The water falls to the ground as **precipitation**, either as rain or ice and snow which later melts. 4. The water collects into lakes and rivers and eventually flows back into the sea. Then the cycle begins again.

Changes of state



The water cycle