Year 4: States of matter

Key vocabulary	
Boiling point	When a liquid reaches the temperature at which it turns into a gas.
Evaporation	When water changes from a liquid to vapour.
Freezing	When a liquid becomes cold enough to turn into a solid.
Gas	Fills all the available space as the molecules are not bound together.
Liquid	Takes the shape of a container; the molecules are loosely connected.
Melting	When heat is applied, a solid melts into a liquid.
Melting point	The temperature at which it melts when you heat it.
Solid	Holds its own shape as the molecules are fixed
State change	Whether a material is a solid, liquid or gas.
Temperature	A measure of how hot or cold it is.

Key Knowledge	
Preceding	• Some solid objectives made from some materials can be changed by squashing, bending, twisting and stretching. (Y2)
Current	• Matter is the name we give to anything that has mass and occupies a volume. • Matter is made up of particles called atoms that are too small to be seen by the human eye. • The way the atoms are arranged determines whether a material is a solid, a liquid or a gas. • A solid is made of tightly bound particles. It is rigid and has a definite. • A solid cannot be compressed and will not change shape unless a force is exerted upon it. • A liquid is made of particles that are very close together and have more freedom to move around. • A liquid has no fixed shape. Liquids can flow and take the shape of their container. • The particles that make up a gas are not bound together. They are free to move and spread out. • A gas has no fixed shape and will expand to fill the entire space available to it. Unlike a solid or liquid, gases can be compressed. • On Earth, water exists in all three states: as solid ice and snow, as liquid water, and as gaseous water vapour in the air. • The water on Earth is constantly being recycled.

Scientific Enquiry	
Observing over time.	How does the level of water in a glass change when left on the windowsill?  Water cycle in a bag. 
Pattern seeking	Is there a pattern in how long it takes different sized ice lollies to melt? 
Comparative tests	Do all liquids freeze at the same temperature? 
Fair tests	How does the surface area of a container of watrer affect how long it takes to evaporate. 
Research	How does the water cycle work in nature?