States of matter - Knowledge Organiser – Year 4

Key knowledge
To name and describe the different states of matter.
To compare and group materials, according to whether they are solids, liquids or gases.
To observe that some materials change state when they are heated or cooled.
To identify the part played by evaporation and condensation in the water cycle.

Key definitions	
boiling point	To become so hot that bubbles appear and the liquid then turns into a gas. Water boils as 100^0 Celsius.
Celsius	The common scale in the UK for measuring temperature.
condensation	The process of a gas cooling and changing into a liquid.
evaporation	The process of a liquid heating and changing into a gas.
freezing	The process of a liquid cooling and changing into a solid.
irreversible	An irreversible change is a change that cannot be undone. If you cannot get back the substance you started the reaction with, that's an irreversible reaction.
melting	The process of a solid heating and changing into a liquid.
molecules	The very tiny parts that make matter.
particle	A particle is even smaller than a molecule. Particles together make a molecule.
precipitation	When water or snow fall from a cloud.
reversible	A reversible change is a change that can be undone. If you can get back the substance you started the reaction with, that's a reversible reaction.
state change	The process of change from one state of matter to another.
temperature	How hot or cold something is.

Key scientist
Nils Wallerius (1706-164)

Wallerius was one of the first scientists to study and document the characteristics of evaporation through modern scientific methods.
Bernard Palissy (1546)
Palissy was the first person to consider the water cycle. He didn't use scientific methos so had to rely on his opinion most of the time. When he observed coastal areas, he found out it had salt water and fresh water. He presumed the fresh water was coming from the rainfall.

Types of materials	
solids	Stays in shape.
	Can be held in your hands.
	Can be cut into a new shape.
	Examples: wood, metal, rock, ice
liquids	Flows and can be poured.
	Changes shape to fit its container.
	Volume never changes.
	Examples: water, juice, oil
gases	Often invisible.
	Always fills its container.
	Shape and volume change.
	Examples: oxygen, hydrogen, carbon dioxide