Science Knowledge Organiser: States of Matter
Summer 1

St Mary's & St Benedict's RC Primary School

Key Vocabulary	
Thermometer	an instrument that measures temperature in degrees Celsius (˚C) or Fahrenheit (˚F)
Melting point	the point where a solid melts and forms a liquid when heated
Freezing point	the point where a liquid freezes and forms a solid when cooled
Boiling point	the point where a liquid evaporates and forms a gas when heated
Solid	state of matter that holds its form and shape
Liquid	state of matter which flows and forms a pool
Gas	state of matter which flows, can spread out and can be squashed
Evaporation	the process where a liquid turns into a gas when heated
Particles	one very small part of matter
Condensation	the process where a gas forms a liquid when cooled
Water vapour	the name of water as a gas
Substance	the material, or matter, of which something is made

Safe Websites for Researching
https://www.bbc.co.uk/bitesize/articles/zsgwwxs
https://kids.britannica.com/kids/assembly/view/191187
https://www.youtube.com/watch?v=JQ4WduVp9k4

Did you know?

Mercury is the only metal which is liquid at room temperature - and it is used in thermometers. Liquid nitrogen has an incredibly low boiling point (around -196°C). It is used in cooking to quickly make ice creams, as it freezes ingredients instantly!

Sticky Learning
The freezing point of water is 0 degrees Celsius.
Water boils when it is heated to 100 degrees Celsius.
Water at the surface of seas, rivers etc. evaporate into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.
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 is the change back from a gas to a liquid caused by cooling

States of matter

Everything in our universe is made of **matter**. There are 3 states of matter:

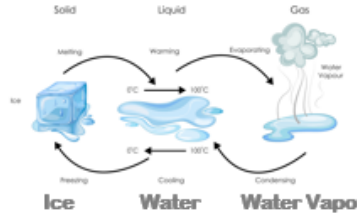
Solid **Liquid** **Gas**

Solid particles have **strong** bonds so solids have a fixed shape. **Liquid** particles have **weaker** bonds and more energy so liquids can change shape. **Gas** particles have **really weak** bonds so gases can spread out and move freely.

What are the main States of Matter?

Changes of state

States of matter can change.
Substances can be **heated** or **cooled** to change from one state to another.



In water, the **melting** and **freezing point** is **0˚C** and the **boiling point** is **100 ˚C.**
Different substances have different melting, freezing and boiling points.

Evaporation

Heating liquid water **increases** the particle's energy and the bonds become **weaker**, turning it into a **gas**. The **hotter** the temperature, the **faster** the rate of evaporation.

Condensation

When **water vapour (gas)** touches a **cold** surface, the particles **lose energy** and the bonds become **stronger**, turning the gas into a **liquid.**