Enriching lives every day; enabling our school community to learn, achieve and flourish through living 'life in all its fullness'

Diversity

Subject: Science

Year group: 4

Term: Spring

Unit name: States of matter

Strand: Chemistry

National curriculum:

- Compare and group materials together, according to whether they are solids, liquids or gases
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Working Scientifically:

- Ask relevant questions.
- Make careful observations and use a range of equipment.
- Gather, record and classify data.
- Record findings using scientific language, drawings, labelled diagrams.
- Identify similarities and differences.
- Use straightforward scientific evidence to answer questions to support findings.

Respect	Integrity

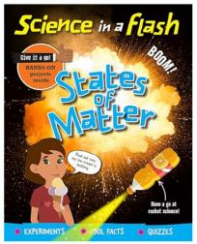
Prior Knowledge – Distinguish between an object and the material from which it is made. (Y1 - Everyday materials). Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials). Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials). Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

Key Vocabulary: Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, matter, air, oxygen, ice, water, water vapor, steam, heated, heat, cooled, cool, temperature, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, boiling point, evaporate, evaporation, condense, condensation, precipitation, infiltration.

Key Scientists:

Albert Einstein

Suggested books:



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Key learning objectives- ***Highlighted boxes = Learning Objective for that lesson. The other two are your Success Criteria.***		
Knowledge	**Working Scientifically**	**Scientific Enquiry**
To compare and group materials together according to their properties solid, liquid and gas.	To make careful observations and identify similarities and differences.	To compare and group materials depending on their properties.
To recognise that vibrations from sounds travel through a medium to compare and group materials together according to their properties solid, liquid and gas.	To make predictions using straightforward evidence and observations	To look for patterns in my observations.
To know that some materials change shape when they are heated or cooled.	To use a thermometer to take accurate measurements (observe closely to nearest degree)	To construct a fair test to investigate melting points.
To construct a fair test to investigate melting points.	To interpret what I have observed using my own scientific knowledge.	To observe over time what happens a liquid changes to a solid.
To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	To set up tests to answer questions.	To carry out a fair test and identify the change and measure factor.
To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	To record using diagrams what I know about the water cycle	To observe the water cycle over time to describe the process.

Scientific Enquiry Key

Comparative / fair testing
Changing one variable to see its effect on another, whilst keeping all others the same.

Pattern-seeking
Identifying patterns and looking for relationships in enquiries where variables are difficult to control.

Research
Using secondary sources of information to answer scientific questions.

Identifying, grouping and classifying
Making observations to name, sort and organise items.

Observation over time
Observing changes that occur over a period of time ranging from minutes to months.

Problem-solving
Applying prior scientific knowledge to find answers to problems.

Assessment- Key indicators: Can create a concept map, including arrows linking the key vocabulary. Can name properties of solids, liquids and gases.
Can give everyday examples of melting and freezing.
Can give everyday examples of evaporation and condensation.
Can describe the water cycle.
Can give reasons to justify why something is a solid liquid or gas.
Can give examples of things that melt/freeze and how their melting points vary from their observations, can give the melting points of some materials.
Using their data, can explain what affects how quickly a solid melts.
Can measure temperatures using a thermometer.
Can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup from their data, can explain how to speed up or slow down evaporation.
Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation, model.