



# Medium Term Unit Planning

**Topic Name: - States of Matter**

**Learning outcome:**

*Brief description of key takeaways:*

Children will be able to:

- 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 (°C)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements iv) using standard units, using a range of equipment, including thermometers and data loggers
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using straightforward scientific evidence to answer questions or to support their findings

**Hook:**  
**Trip to Science museum.**

**Topic Showcase (e.g. display, museum, performance, presentation)**  
**A Science Fair**

**Oracy:**  
**Science Fair – children will present each experiment or do demonstrations of experiments for visitors and take questions.**

**Key Vocabulary:**  
Solid, liquid, state, matter, particle, grain, category, classify, group, evidence, question, discuss, gas, state, particles, evidence, proof, explain, solidifying, freezing, melting, condensing, evaporating, particles, thermometer, temperature, Celsius, Fahrenheit, degrees, Evaporation, condensation, precipitation [*'words ending in -tion' is a Year 2 spelling objective, and could be revised with these key words*], particle, state, liquid, gas, solid, ice, rain, clouds, vapour, transpiration, cycle, particle, temperature, change, evidence



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## Key Texts (whole class reading/end of the day book/Talk for Writing Texts etc.):

The Rhythm of the Rain – Grahame Baker-Smith

Plasma – Scientific Facts for Kids on Kiddle

What's the Matter – A Poem by Tom McGovern

## Citizenship/Community Opportunities:

*(Focus – change in attitude/increase knowledge and awareness/make a difference)*

Use what we have learned to provide information on how we can reduce water wastage. [Link to Eco Team.](#)

## Experiences/Visits/Visitors

Trip to the Science Museum at Think Tank Birmingham

## Main Subjects covered:

Science

## Subject 1 Threshold concepts

### Science - Work scientifically

This concept involves learning the methodologies of the discipline of science.

### Investigate materials

This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.

## Notes:

Lesson title and  
learning Intention

Threshold concepts (success  
criteria)

Milestones  
(success criteria)

Lesson  
structure/differentiation



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<p>1. "Solid or Liquid?" Children learn the properties of solids, liquids and gases and can sort them accordingly.</p>	<p><b>Investigate materials</b> This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.</p>	<ul style="list-style-type: none"> <li>Compare and group materials together, according to whether they are solids, liquids or gases</li> </ul>	<ul style="list-style-type: none"> <li>Share the properties of solids, liquids and gases. Using the following resources, children sort and classify them and are able to explain their findings.</li> <li>Lots of empty containers , spoons for stirring, dry sand, pieces of wood, metal, plastic, sugar, salt, stones, fruit, bicarbonate of soda, water, washing up liquid, milk, honey, vinegar, juice, shaving foam , small pots of jelly, cameras/tablets for recording video (1 per group if possible).</li> </ul>
<p>2. "It's it gassy?" Children will evidence that gas exists and how it moves.</p>	<p><b>Investigate materials</b> This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.</p> <p><b>Work scientifically</b> This concept involves learning the methodologies of the discipline of science.</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>Set up simple, practical enquiries and comparative and fair tests.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<ul style="list-style-type: none"> <li>Children act as particles to demonstrate how they move differently in solids, liquids and gases.</li> <li>Children use a range of solids and put them in jars and fill the jar with water to see the bubbles representing the gas. They give oral feedback on their experiment to the rest of the class.</li> </ul>



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		<p>Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</p> <p>Identify differences, similarities or changes related to simple, scientific ideas and processes.</p> <p>Use straightforward, scientific evidence to answer questions or to support their findings.</p>	
3. "Particle Party" - children will complete a range of experiments with	<b>Investigate materials</b> This concept involves becoming familiar with a range of materials,	Observe that some materials change state when they are heated or cooled, and measure the temperature at	The children will make take the temperature of water in different places and at different



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<p>water at different temperatures to observe the change in state.</p>	<p>their properties, uses and how they may be altered or changed.</p> <p><b>Work scientifically</b> This concept involves learning the methodologies of the discipline of science.</p>	<p>which this happens in degrees Celsius (°C), building on their teaching in mathematics</p> <p>Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.</p>	<p>temperatures and observe and record the findings over time.</p>
<p>4. "Evaporation and Condensation" – children will learn all about the water cycle and learn the terms evaporation and condensation.</p>	<p><b>Investigate materials</b> This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.</p> <p><b>Work scientifically</b> This concept involves learning the</p>	<p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<ul style="list-style-type: none"> <li>Children will learn about the water cycle and will draw out it out in a simple clearly labelled diagram that they can use as an explanation prompt.</li> </ul>



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	methodologies of the discipline of science.		
5. Evaporation and Condensation" – continued	<p><b>Investigate materials</b> This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.</p> <p><b>Work scientifically</b> This concept involves learning the methodologies of the discipline of science.</p>	<p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics</p> <p>Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.</p> <p>Gather, record, classify and present data in a variety of</p>	<ul style="list-style-type: none"><li>Children build on their knowledge of the water cycle and complete puddle experiment where they measure and record the size of the puddle over time and explain the findings of how the evaporation has taken place.</li></ul>



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		ways to help in answering questions.  Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.	
6. "Make it rain" – children will conduct a range of experiments to demonstrate transpiration and condensation.	<b>Work scientifically</b> This concept involves learning the methodologies of the discipline of science. <b>Investigate materials</b> This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.	Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics.  Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.  Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Children conduct the pot plant and Make it Rain experiments in order to demonstrate transpiration and condensation.
7. Science Fair – children will set the fair and repeat and present the	<b>Investigate materials</b> This concept involves becoming familiar with a range of materials,	Report on findings from enquiries, including oral and written explanations, displays	We will invite guests – parents/children/other staff – to our science fair where we will repeat our experiments and share our



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experiments that they have done throughout the topic to an audience or visitors.	<p>their properties, uses and how they may be altered or changed.</p> <p><b>Work scientifically</b> This concept involves learning the methodologies of the discipline of science.</p>	or presentations of results and conclusions.	findings and newly acquired knowledge on states of matter.
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