



Term 1

States of Matter

**PRIOR LEARNING/STARTING POINT:** This unit links directly to the working scientifically objectives from KS1 Everyday Materials and Year 3.

**INTENT****KNOWLEDGE**

- 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.

**IMPLEMENTATION****ACTIVITIES**

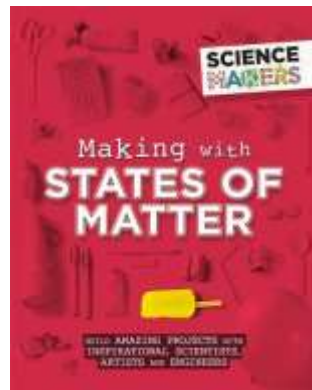
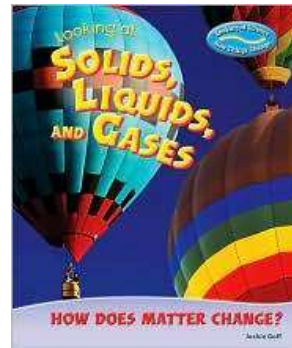
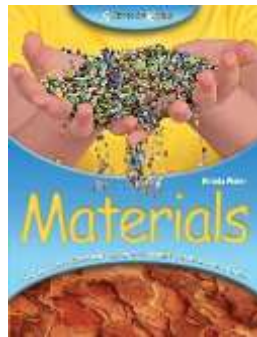
- Lesson 1** – Solid liquid or gas – draw and describe solids liquids and gases.
- Lesson 2** - Investigating gases – investigation into carbon dioxide – children make predictions.
- Lesson 3** – heating and cooling – investigation into melting chocolate.
- Lesson 4** – wonderful water – Ice cube investigation
- Lesson 5** – evaporation investigation – Investigation into whether temperature changes how fast towels dry.
- Lesson 6** – The water cycle – Creating an interactive model of the water cycle.

**IMPACT****OUTCOMES**

- I can sort and describe materials.
- I can investigate gases and explain their properties.
- I can investigate materials as they change state.
- I can explore how water changes state.
- I can investigate how water evaporates.

**VOCABULARY**

Evaporation, condensation, precipitation, collection, clouds, rain, sleet, hail, snow, Solid, liquid, gas, particles, state, material, properties.

**READING OPPORTUNITIES****NEXT STEPS IN LEARNING****Year 5****Links with properties of materials:**

- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

**SKILLS**

- 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 using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- 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 results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

**Key Questions**

What are the states of matter?


Can an object change state?

If an object changes state, can it change back again?

Are there only four states of matter?


Why do some solids behave like liquids/liquids behave like solids?

<ul style="list-style-type: none"> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>using straightforward scientific evidence to answer questions or to support their findings</li> </ul>		
<b>LINKS</b> <b>Geography – The Water Cycle</b> <b>Maths – Measurement and estimation</b>		

	<b>Curriculum Coherence – Year 4 Science</b>
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Term 2	<b>ELECTRICITY / SOUND</b>
<b>PRIOR LEARNING/STARTING POINT:</b> This unit links directly to the working scientifically objectives from KS1 and year 3. Links to insulators and conductors within year 2 materials unit.	
<ul style="list-style-type: none"> <li>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> </ul>	

INTENT	IMPLEMENTATION	IMPACT
<p><b>KNOWLEDGE</b> <b>ELECTRICITY</b></p> <p>identify common appliances that run on electricity</p> <p>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>recognise some common conductors and insulators, and associate metals with being good conductors</p> <p><b>SOUND</b></p> <p>identify how sounds are made, associating some of them with something vibrating</p> <p>recognise that vibrations from sounds travel through a medium to the ear</p> <p>find patterns between the pitch of a sound and features of the object that produced it</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>recognise that sounds get fainter as the distance from the sound source increases.</p>	<p><b>ACTIVITIES</b></p> <p><b>ELECTRICITY</b></p> <p><b>Lesson 1</b> – Explore the differences between mains and battery power and the everyday appliances which use them. Classify different appliances and how they are powered.</p> <p><b>Lesson 2</b> – Construct simple circuits to explore the difference between COMPLETE and INCOMPLETE circuits and how the circuits work. Draw scientific diagrams to represent their circuits.</p> <p><b>Lesson 3</b> – INVESTIGATION – Children investigate the difference between conductors and insulators and test which materials will allow electricity to travel through.</p> <p><b>Lesson 4</b> – Children explore how switches work within their circuits. Create their own effective switches using their previous knowledge of conductors and insulators.</p> <p><b>Lesson 5</b> – Children investigate variables in their circuits and how they can affect their circuits and what happens to them.</p> <p><b>SOUND</b></p> <p><b>Lesson 1</b> – Children explore how sounds are made through vibration and recognise different sounds in different environments.</p> <p><b>Lesson 2</b> – Children recognise how sounds are heard and learn the functions of and roles of different parts of the ear.</p> <p><b>Lesson 3</b> – Children investigate patterns and links between pitch, volume and tone and how they can change.</p> <p><b>Lesson 4</b> – INVESTIGATION Children investigate how sounds can become fainter by investigating <b>Which is the best soundproofing material?</b></p>	<p><b>OUTCOMES</b></p> <p><b>ELECTRICITY</b></p> <p>I can identify common appliances that run on mains and battery electricity.</p> <p>I can construct a simple electrical circuit naming the parts inc; cell, battery, bulb, wire, buzzer, switch.</p> <p>I can identify whether different components will work within a circuit.</p> <p>I can recognise that a switch opening or closing can effect whether a circuit will work.</p> <p>I can recognise common conductors and insulators.</p> <p><b>SOUND</b></p> <p>I can recognise that sounds are made through vibrations.</p> <p>I can recognise that sound travels through vibrations from a source to the ear.</p> <p>I can recognise how to change the pitch and volume of a sound.</p> <p>I can recognise that sounds can become stronger and fainter and how to change them.</p>
<p><b>VOCABULARY</b></p> <p>Appliance, circuit, conductor, insulator, mains, battery, cell, bulb, switch (open and closed), buzzer, motor, voltage, current</p>	<p><b>READING OPPORTUNITIES</b></p>	<p><b>NEXT STEPS IN LEARNING</b></p> <p>Year 6 – Electricity</p> <p>Key Stage 3 – Physics – Soundwaves/Electricity and Electromagnetism</p>
<p><b>SKILLS</b></p> <p>-Ask relevant questions and use different types of scientific enquiries to answer them</p>		<p><b>Key Questions</b></p> <p><b>How is electricity made?</b></p>

<p>-Set up simple practical enquiries, comparative and fair tests</p> <p>-Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including 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, keys, bar charts, and tables</p>		<p><b>How do sound and electricity travel?</b></p> <p><b>How does sound travel?</b></p> <p><b>How does the ear work?</b></p> <p><b>What makes different sounds?</b></p>
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**LINKS**

Life learning – Safety  
History – The Blitz (Blackout)

Forest School Learning – Sound Investigation  
Music – Composing and Making Music

**Curriculum Coherence – Year 4 Science**

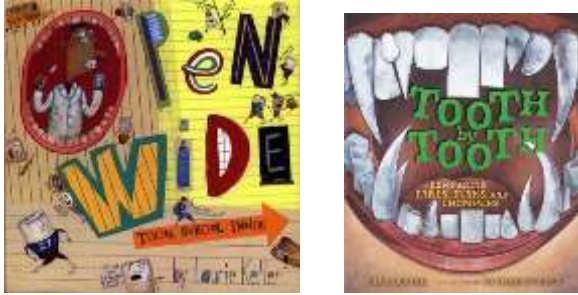


Term 3	<b>HUMAN BODY</b>
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**PRIOR LEARNING/STARTING POINT:**

- Year 1
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- Year 2
- notice that animals, including humans, have offspring which grow into adults
  - find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
  - describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- Year 3
- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
  - identify that humans and some other animals have skeletons and muscles for support, protection and movement

<b>INTENT</b>	<b>IMPLEMENTATION</b>	<b>IMPACT</b>
<p><b>KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>• recognise that environments can change and that this can sometimes pose dangers to living things.</li> <li>• describe the simple functions of the basic parts of the digestive system in humans</li> <li>• identify the different types of teeth in humans and their simple functions</li> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>	<p><b>ACTIVITIES</b></p> <p><b>Human body</b></p> <p><b>Lesson 1</b> – naming parts of the digestive system activity - diagram</p> <p><b>Lesson 2</b> – Functions of the human digestive system activity -</p> <p><b>Lesson 3</b> – Types and functions of teeth activity – investigation and observation of teeth and food.</p> <p><b>Lesson 4</b> – Tooth decay enquiry – questioning and discussions – investigation using eggs in different liquids.</p> <p><b>Lesson 5</b> – complete results and conclusions.</p> <p><b>Animals and habitats</b></p> <p><b>Lesson 1</b> – characteristics of an organism – living, died, never alive comparison – MRS GREN</p> <p><b>Lesson 2</b> – features of habitats – identifying potential problems for animals in their changing habitats.</p> <p><b>Lesson 3</b> – trip to the local area to find organisms – using cameras/ipads to take pictures.</p> <p><b>Lesson 4</b> – children to create their own branching database – categorising.</p> <p><b>Lesson 5</b> – design an investigation into different habitats and which a worm or snail will prefer.</p> <p><b>Lesson 6</b> – exploring the feeding relationships between animals and plants</p>	<p><b>OUTCOMES</b></p> <p>I can identify and name parts of the human digestive system.</p> <p>I can explain the functions of the digestive system.</p> <p>I can use scientific evidence to answer questions.</p> <p>I can identify the functions of teeth.</p> <p>I can identify similarities and differences related to scientific ideas.</p> <p>I can ask scientific questions and choose a scientific enquiry to answer them.</p> <p>I can say what a habitat is and give examples and suggest what different habitats are in my local environment.</p> <p>I can suggest ways that a changing environment affects the organisms living in it.</p>

		I can suggest reasons why the different animals live in different parts of the wild area. (Link to food chains, protection and survival)
<p><b>VOCABULARY</b> Organism, sort, group, criteria, Venn diagram, Carroll diagram, Variation, classification, vertebrates, invertebrates, habitat, environment, wildlife, change, danger, endangered, extinct, conservation.</p>	<p><b>READING OPPORTUNITIES</b></p> 	<p><b>NEXT STEPS IN LEARNING</b></p> <p><u>Year 5</u></p> <ul style="list-style-type: none"> <li>describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>describe the life process of reproduction in some plants and animals.</li> </ul> <p><u>Year 6</u></p> <ul style="list-style-type: none"> <li>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>
<p><b>SKILLS</b></p> <ul style="list-style-type: none"> <li>asking relevant questions and using different types of scientific enquiries to answer them</li> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>using straightforward scientific evidence to answer questions or to support their findings</li> </ul>		<p><b>Key Questions</b></p> <p><b>How do we digest our food and what happens once it is digested?</b></p> <p><b>Why do we have so many different teeth? What different jobs do they do?</b></p> <p><b>How do our teeth decay?</b></p> <p><b>How do all living things survive?</b></p>
<p><b>LINKS</b> Forest School – Creating dens and habitats Geography – Human and physical Geography P.E - Athletics</p>		