

SCIENCE MEDIUM TERM PLAN

Year 4	Autumn 1 <i>Electricity</i>	Autumn 2 <i>States of Matter</i>	Spring 1 <i>Sound</i>	Spring 2 <i>Living things and their Habitats</i>	Summer 1 <i>Living Things and their Habitats</i>	Summer 2 <i>Animals including Humans</i>
Topic Title	How can I make a simple electrical circuit?	What are solids, liquids and gasses?	How does sound travel?	How can I classify animals?	What are consumers and producers?	How do I digest my food?
National Curriculum	<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>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</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>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p>	<p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p>

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Knowledge	<p>Identify common appliances that run on electricity</p> <p>Know that cells, batteries and the mains are all sources of electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors</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>Compare and group materials together, according to whether they are solids, liquids or gases</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 or research the temperature at which this happens in degrees Celsius (°C)</p> <p>To know that as temperature increases, solids can change into liquids.</p> <p>To know with further increases of temperature, liquids can turn into gas</p> <p>To know some changes are no reversible</p>	<p>To identify how sounds are made, associating some of them with something vibrating</p> <p>To explore and identify ways musical instruments vibrate to make sound</p> <p>To find patterns between pitch of sound and the features of the object that produces it</p> <p>To know how sounds can be changed in a variety of ways, for example pitch and volume</p> <p>To know which materials provide the best insulation against sound</p>	<p>To recognise that living things can be grouped in different ways</p> <p>To know animals can be grouped based on physical characteristics</p> <p>To explore and use classification keys to help identify, group and name living things in their local and wider environment</p> <p>To know that environments can change and this poses a threat to living things</p> <p>To know the impact of humans on environments</p>	<p>Consumers are organisms that cannot produce their own food and rely on other organisms for nutrition</p> <p>Producers such as plants, can make their own food through a process called photosynthesis</p> <p>Consumers can be classified into different types based on their feeding habits, for example: Carnivore Herbivore Omnivore</p> <p>Know the roles of producers, predators and prey</p> <p>Food chains and food webs depict the flow of energy from producers to consumers in an eco system</p>	<p>To know and be able to explain the digestive system, including annotating diagrams</p> <p>To describe the simple function of basic parts of the digestive system</p> <p>To identify the different types of teeth in humans and their simple function</p> <p>To know that a human has three types of teeth: incisors, canines and molars.</p> <p>To know what the function of these different types of teeth are.</p>
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		To use this knowledge to understand the water cycle				
Investigations	<p>What materials are best at conducting electricity?</p> <p>How can you control a working circuit with switches?</p>	<p>How long does it take for water to evaporate?</p> <p>Will an ice cube melt faster in a warmer place?</p>	What material would be best to silence an alarm clock?	Is there more than one way to classify or group the same animals?		Recreate the digestive system using a rubber glove.
Quick Fire 5	<ol style="list-style-type: none"> 1. What common appliances run on electricity? 2. Name the basic parts of a simple series circuit. 3. What is important about a complete loop circuit? 4. What is a simple series circuit? 5. Name 5 common conductors and insulators. 	<ol style="list-style-type: none"> 1. What is a solid, liquid or gas? 2. What happens during the process of the water cycle? 3. What happens to some materials when they are heated or cooled? 4. At what point do solids change to liquids? Liquids change to gasses? 5. Name some changes that are reversible. 	<ol style="list-style-type: none"> 1. How are sounds made? 2. How do musical instruments vibrate to make sound? 3. What is pitch? What is sound? 4. How can we change sound? 5. Which materials provide the best insulation against sound? 	<ol style="list-style-type: none"> 1. Name two ways to group living things. 2. How do living things adapt to their environments? 3. Why might an environment change? 4. What happens when environments change? 5. How do humans impact the environment? 	<ol style="list-style-type: none"> 1. What is a consumer? 2. How do producers make their own energy? 3. What are the 3 different groups that consumers can be classified as? 4. What are the roles of a predator and prey? 5. What do food chains tell us? 	<ol style="list-style-type: none"> 1. What is the role of the oesophagus? 2. Which part of the digestive system absorb nutrients? 3. Name 3 different types of teeth that humans have. 4. Which teeth are used to grind food? 5. What are canine teeth used for?

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<p>Working Scientifically</p>	<p>Ask relevant questions Plan different types of scientific enquiries to answer questions Set up simple and practical enquiries, comparative and fair tests Make systematic and careful observations using a range of equipment, including thermometers and data loggers . Take accurate measurements using standard units, where appropriate Record findings using simple scientific language, drawings and labelled diagrams Record findings using keys, bar charts, and tables Gather, record, classify and present data in a variety of ways to help to answer questions Report on findings from enquiries, including oral and written explanations, of results and conclusions Report on findings from enquiries using displays or presentations Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>					
<p>Vocabulary</p>	<p>Electricity, appliance, device, mains, plug, conductor, insulator, circuit, component, positive, negative, connections, switch, buzzer, crocodile clip</p>	<p>Solid, liquid, gas, heating, cooling, state change, melting, boiling point, evaporation, condensation, water cycle</p>	<p>Sound, source, vibrate, vibration, travel, pitch, volume, insulation</p>	<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>	<p>Herbivore, carnivore, omnivore, producer, prey, food chain</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, nutrients, rectum, anus, teeth, incisor, canine, molar, premolars</p>
<p>Prior Learning</p>	<p>They will have some knowledge of the properties of materials, but this may be their first experience of electricity.</p>	<p>Builds on prior knowledge or sorting and classifying materials.</p>	<p>Builds on key stage 1 knowledge of body parts and their functions/ animals and their senses</p>	<p>Builds on from learning about plants in year 1, 2 and 3.</p>	<p>Builds on from previous term's learning.</p>	<p>Builds on from learning about basic body functions in KS1.</p>