# SCIENCE MEDIUM TERM PLAN

| Year 4 | **Autumn 1**<br>*Electricity* | **Autumn 2**<br>*States of Matter* | **Spring 1**<br>*Sound* | **Spring 2**<br>*Living things and their Habitats* | **Summer 1**<br>*Living Things and their Habitats* | **Summer 2**<br>*Animals including Humans* |
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| 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 | Identify common appliances that run on electricity<br><br>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br><br>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<br><br>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br><br>Recognise some common conductors and insulators, and associate metals with being good conductors. | Compare and group materials together, according to whether they are solids, liquids or gases<br><br>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)<br><br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | Identify how sounds are made, associating some of them with something vibrating<br><br>Recognise that vibrations from sounds travel through a medium to the ear<br><br>Find patterns between the pitch of a sound and features of the object that produced it<br><br>Find patterns between the volume of a sound and the strength of the vibrations that produced it<br><br>Recognise that sounds get fainter as the distance from the sound source increases. | Recognise that living things can be grouped in a variety of ways<br><br>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment | Construct and interpret a variety of food chains, identifying producers, predators and prey.<br><br>Recognise that environments can change and that this can sometimes pose dangers to living things | Describe the simple functions of the basic parts of the digestive system in humans<br><br>Identify the different types of teeth in humans and their simple functions |

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| Knowledge | Identify common appliances that run on electricity<br><br>Know that cells, batteries and the mains are all sources of electricity<br><br>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br><br>Recognise some common conductors and insulators, and associate metals with being good conductors<br><br>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<br><br>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit | Compare and group materials together, according to whether they are solids, liquids or gases<br><br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature<br><br>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)<br><br>To know that as temperature increases, solids can change into liquids.<br><br>To know with further increases of temperature, liquids can turn into gas<br><br>To know some changes are no reversible | To identify how sounds are made, associating some of them with something vibrating<br><br>To explore and identify ways musical instruments vibrate to make sound<br><br>To find patterns between pitch of sound and the features of the object that produces it<br><br>To know how sounds can be changed in a variety of ways, for example pitch and volume<br><br>To know which materials provide the best insulation against sound | To recognise that living things can be grouped in different ways<br><br>To know animals can be grouped based on physical characteristics<br><br>To explore and use classification keys to help identify, group and name living things in their local and wider environment<br><br>To know that environments can change and this poses a threat to living things<br><br>To know the impact of humans on environments | Consumers are organisms that cannot produce their own food and rely on other organisms for nutrition<br><br>Producers such as plants, can make their own food<br><br>Consumers can be classified into different types based on their feeding habits, for example:<br>Carnivore<br>Herbivore<br>Omnivore<br><br>Know the roles of producers, predators and prey | To know and be able to explain the digestive system, including annotating diagrams<br><br>To describe the simple function of basic parts of the digestive system<br><br>To identify the different types of teeth in humans and their simple function<br><br>To know that a human has three types of teeth: incisors, canines and molars.<br><br>To know what the function of these different types of teeth are. |

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| | | To use this knowledge to understand the water cycle | | | | |
| Investigations | What materials are best at conducting electricity?<br><br>How can you control a working circuit with switches? | How long does it take for water to evaporate?<br><br>Will an ice cube melt faster in a warmer place? | 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 | 1. What common appliances run on electricity?<br>2. Can you name the basic parts of a simple series circuit?<br>3. What is important about a complete loop circuit?<br>4. What is a simple series circuit?<br>5. Can you name 5 conductors and 5 insulators? | 1. What is a solid, liquid or gas?<br>2. What happens during the process of the water cycle?<br>3. What happens to some materials when they are heated or cooled?<br>4. At what point do solids change to liquids? Liquids change to gasses?<br>5. Name some changes that are reversible. | 1. How are sounds made?<br>2. How do musical instruments vibrate to make sound?<br>3. What is pitch? What is sound?<br>4. How can we change sound?<br>5. Which materials provide the best insulation against sound? | 1. Name two ways to group living things.<br>2. How does a key help us identify an animal?<br>3. Why might an environment change?<br>4. What happens when environments change?<br>5. How do humans impact the environment? | 1. Why do most food chains start with a producer?<br>2. What is the difference between a predator and a prey?<br>3. Can an animal be both a predator and a prey? Give an example.<br>4. What does this food chain tell us?<br>5. What might happen to this food chain if the environment changed? | 1. What is the role of the oesophagus?<br>2. Which part of the digestive system absorb nutrients?<br>3. Name 3 different types of teeth that humans have.<br>4. Which teeth are used to grind food?<br>5. What are canine teeth used for? |

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| Working Scientifically | Ask relevant questions<br>Plan different types of scientific enquiries to answer questions<br>Set up simple and practical enquiries, comparative and fair tests<br>Make systematic and careful observations using a range of equipment, including thermometers and data loggers .<br>Take accurate measurements using standard units, where appropriate<br>Record findings using simple scientific language, drawings and labelled diagrams<br>Record findings using keys, bar charts, and tables<br>Gather, record, classify and present data in a variety of ways to help to answer questions<br>Report on findings from enquiries, including oral and written explanations, of results and conclusions<br>Report on findings from enquiries using displays or presentations<br>Identify differences, similarities or changes related to simple scientific ideas and processes<br>Use straightforward scientific evidence to answer questions or to support their findings<br>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions | | | | | |
| Vocabulary | Electricity, appliance, device, mains, plug, conductor, insulator, circuit, component, positive, negative, connections, switch, buzzer, crocodile clip | Solid, liquid, gas, heating, cooling, state change, melting, boiling point, evaporation, condensation, water cycle | Sound, source, vibrate, vibration, travel, pitch, volume, insulation | Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate | Herbivore, carnivore, omnivore, producer, prey, food chain | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, nutrients, rectum, anus, teeth, incisor, canine, molar, premolars |
| Prior Learning | They will have some knowledge of the properties of materials, but this may be their first experience of electricity. | Builds on prior knowledge or sorting and classifying materials. | Builds on key stage 1 knowledge of body parts and their functions/ animals and their senses | Builds on from learning about plants in year 1, 2 and 3. | Y1 carnivores, herbivores, omnivores. Y2 simple food chains, sources of food. Y3 plants make their own food; animals get nutrition from what they eat. | Builds on from learning about basic body functions in KS1. |