

Year 4 Scheme of Work – Science

Unit	Time (Wks)	Activities	Outcomes	Differentiation	Assessment	NC Links	Other Subject Link
Previous learning: N/A				Next learning: Y6 – understanding of electricity changed over time; circuit diagrams; voltage			
4.1 Electricity	6-8	<p>L1 - Classify and present data, identifying common appliances that run on electricity.</p> <p>L2 - Identify circuit components and build working circuits.</p> <p>L3 - Investigate whether circuits are complete or incomplete.</p> <p>L4 - Investigate which materials are electrical conductors or insulators.</p> <p>L5 - Explain how a switch works in a circuit, build switches and report my findings.</p> <p>L6 - Discuss and solve problems about electricity using reasoning skills.</p>	<ul style="list-style-type: none"> - Define what an electrical appliance is and identify those that are mains- or battery-powered. - Identify different circuit components and explain what they do. - Build series circuits, identifying and explaining whether they are complete or incomplete. - Explain what electrical conductors and insulators are and give several examples of these. - Identify several different switches and explain how switches work in a circuit. - Apply their knowledge of electricity to different situations. <p>Working scientifically</p> <ul style="list-style-type: none"> - Group and classify things (appliances) and record their findings using labelled diagrams. - Use a range of (electrical) equipment and record findings using labelled diagrams. - Make predictions, use a range of (electrical) equipment and draw simple conclusions from their results. - Decide how to set up a simple practical enquiry, make predictions and draw simple conclusions from their results. - Report and present their results and conclusions to others in oral forms. - Use straightforward scientific evidence to answer questions and identify similarities, differences, patterns and changes . 	<ul style="list-style-type: none"> - Modelling - Practical activities/ investigations. - Knowledge organiser 	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p>	<p>Identify common appliances that run on electricity.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>Making systematic and careful observations, using a range of equipment.</p> <p>Recording findings using labelled diagrams.</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>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Using results to draw simple conclusions.</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</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>Reporting on findings from enquiries,</p>	DT – materials

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						<p>including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p>	
<p>Previous learning: Y3 – different ways plants/animals obtain food; food/nutrient groups; diet; skeleton</p>				<p>Next learning: Y5 – stages of human development; changes and hygiene during puberty</p>			
<p>4.2 Animals including Humans</p>	<p>6-8</p>	<p>L1 – Discuss how to keep teeth healthy; plan and set up an investigation into tooth decay. L2 - Draw conclusions from an investigation about keeping teeth healthy and to identify and examine different types of teeth. L3 - Identify the parts of the digestive system and their function. L4 - Demonstrate and explain the process of digestion. L5 - Construct food chains for different habitats and explain findings using the correct scientific language. L6 - Compare the teeth of different animals and link this with their role in a food chain.</p>	<p>- Name the different types of teeth found in humans; explain their function. - Explain what tooth decay is and how to look after our teeth. - Describe the simple functions of the basic parts of the digestive system in humans. - Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Working scientifically</p> <p>- Set up and carry out simple comparative and fair tests; observe changes over time. - Draw simple conclusions from their results and suggest improvements to investigations; record findings using drawings and keys. - Use straightforward scientific evidence to answer questions or to support their findings. - Gather, record, classify and present data in a variety of ways to help in answering questions. - Identify similarities, differences, patterns and changes relating to simple scientific ideas and processes.</p>	<p>- Practical activities/investigations. - Modelling - Knowledge organiser</p>	<p>Continuous throughout. Observations. Discussions. Investigation.</p>	<p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Use straightforward scientific evidence to answer questions or to</p>	<p>Islamic Studies – Allah created the human body</p> <p>PSHCE – staying healthy</p>

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						<p>support their findings.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p>	
<p>Previous learning: Y3 – magnetic materials</p>				<p>Next learning: Y5 – test material’s properties; thermal/electrical conductors and insulators; dissolving; separating mixtures; irreversible changes</p>			
<p>4.3 States of Matter</p>	<p>6-8</p>	<p>L1 - Sort and describe materials. L2 – Investigate gases and explain their properties. L3 – Investigate materials as they change state. L4 – Explore how water changes state. L5 – Investigate how water evaporates. L6 – Identify and describe the different stages of the water cycle.</p>	<ul style="list-style-type: none"> - Describe the properties of solids, liquids and gases. - Explain that melting and freezing are opposite processes that change the state of a material. - Identify the melting and freezing point of several different materials. - Explain that heating causes evaporation and cooling causes condensation. - Explain that evaporation and condensation are opposite processes that change the state of a material. - Explain that the higher the temperature, the quicker water evaporates. - Explain what happens to water at the different stages of the water cycle. - Make observations and conclusions. - Be able to answer questions based on their learning. <p>Working scientifically</p> <ul style="list-style-type: none"> - Observe chocolate melting, turning from a solid to a liquid. Observe how an ice cube changes over time. - Observe the evaporation of water over time, observing how long a wet tea towel takes to dry. - Sort materials into groups of solids, liquids and gases. 	<ul style="list-style-type: none"> - Modelling - Practical activities/investigations. - Knowledge organiser 	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions/debates</p> <p>Investigation.</p>	<p>To compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>To 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 associate the rate of evaporation with temperature.</p> <p>To make systematic, careful and accurate observations and measurements and report on findings from enquiries by displaying results and conclusions.</p> <p>To identify the part played by evaporation and condensation in the water cycle.</p>	<p>Islamic Studies – Allah created water</p>

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			<ul style="list-style-type: none"> - Identify properties of solids, liquids and gases. - Identify materials that make up a bottle of fizzy drink and what states of matter they are. - Identify the melting points of different materials. - Carry out a comparative test to investigate the weight of carbon dioxide in fizzy drinks. - Carry out a fair test, observing how temperature affects the time it takes chocolate to melt. - Carry out a test, exploring how temperature affects how quickly a tea towel dries. 				
<p>Previous learning: In year 1, children would have identified and described a variety of common plants and animals. In year 2, children would have learnt about the importance of habitats for animals and plants. In year 3, children would have learnt about the nutritional requirements of plants and animals.</p>			<p>Next learning: In year 5, children will learn about the life cycles of different kinds of animals. In year 6, children will learn more about how living things, including microorganisms, are classified and will learn about how differences between individuals contribute to natural selection and evolution.</p>				
<p>4.4 Living Things and their Habitats</p>	6-8	<p>L1 – Group living things in a variety of ways based on their similarities and differences. L2 - Identify, group and classify vertebrate species. L3 - Make careful observations in order to classify invertebrate species. L4 - Develop criteria to identify, group and classify a range of animal species using classification keys. L5 - Conduct observations in order to analyse positive and negative influences on living things in our local environment. L6 - use scientific evidence to answer questions about endangered living things.</p>	<ul style="list-style-type: none"> - Recognise that living things can be grouped in a variety of ways. - Recognise and classify vertebrate animals into mammals, birds, reptiles, amphibians and fish. - Describe the characteristics of different invertebrate groups. - Design a classification key using closed questions and their knowledge of animal groups. - Identify positive and negative features of their local environment and are beginning to recognise the impact they have on living things. - Identify why certain species have become endangered and explain what humans are doing to help. <p>Working scientifically</p> <ul style="list-style-type: none"> - Identify changes, patterns, and similarities and differences. - Identify, group and classify vertebrates, using a simple key. - Make careful and systematic observations in field enquiries. - Identify criteria for identifying, grouping and classifying living things. - Gather and record their observations during a field enquiry. - Gather scientific evidence to answer a question. 	<ul style="list-style-type: none"> - Practical activities/investigations. - Modelling. - Knowledge organiser 	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p> <p>Investigation.</p>	<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Identify changes, patterns, and similarities and differences.</p> <p>Identify group and classify things, using simple keys when appropriate.</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>Make systematic and careful observations.</p> <p>Talk about criteria for identifying, grouping and classifying.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living thing.</p> <p>Gather, record and present observations in a variety of ways to help answer questions.</p>	<p>Maths – Venn/Carroll diagram</p> <p>PSHCE - environment</p>

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						Use straightforward scientific evidence (from observations, measurements or secondary sources) to answer questions or support their conclusions.	
Previous learning: N/A				Next learning: N/A			
4.5 Sound	6-8	<p>L1 - Describe and explain sound sources L2 - Explain how different sounds travel. L3 - Explore ways to change the pitch of a sound. L4 - Investigate ways to absorb sound. L5 - Investigate ways to absorb sound.</p>	<ul style="list-style-type: none"> - Explain how sound sources vibrate to make sounds. - Explain how vibrations change when the loudness of a sound changes. - Explain how sounds travel to reach our ears. - Describe the pitch of a sound. - Describe patterns between the pitch of a sound and the features of the object that made the sound. - Explain how sound travels through a string telephone. - Identify the best material for absorbing sound. - Create a musical instrument that can play high, low, loud and quiet sounds. - Make observations and conclusions. - Be able to answer questions based on their learning. <p>Working scientifically</p> <ul style="list-style-type: none"> - Conduct a sound survey of the school to find out which places are noisy and which are quiet at different times of the day. - Make conclusions and spot patterns based on why these might be the noisiest and quietest places. - Investigate the link between volume and the size of the vibrations of a sound. - Play different instruments and explore patterns between pitch and the type of instrument and how it is played. - Explore patterns between the loudness of a sound and the distance from the sound source. - Carry out a comparative test measuring the sound in different areas of the school. - Carry out a comparative test to investigate how well different materials absorb sound. 	<ul style="list-style-type: none"> - Practical activities/investigations. - Modelling. - Knowledge organiser 	<p>Continuous throughout.</p> <p>Observations.</p> <p>Discussions.</p> <p>Investigation.</p>	<p>To identify how sounds are made, associating some of them with something vibrating.</p> <p>To find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>To recognise that vibrations from sounds travel through a medium to the ear.</p> <p>To find patterns between the pitch of a sound and features of the object that produced it.</p> <p>To recognise that sounds get fainter as the distance from the sound source increase.</p>	<p>Islamic Studies – Allah gave us hearing</p> <p>Nasheed - pitch</p>