

Science progression map

Curriculum drivers: The curriculum is underpinned by the school's Curriculum Drivers: Community, Communication and Consolidation. The spiritual, moral, social and cultural development of our pupils and their understanding of the core values of our society are woven through the curriculum and developed through 'The Heatherlands Way' values of independence, resilience, motivation, aspiration and respect.

The knowledge and skills children learn must be co-ordinated and coherent. In order to achieve this in our curriculum, we have identified the key concepts or overarching ideas within each subject. To enable the children to access them, we call these the '**Big Ideas**'. In science these are: **investigation, explanation and observation.**

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
WORKING SCIENTIFICALLY (non negotiables in bold)	<p>DEVELOPMENT MATTERS: CHARACTERISTICS OF EFFECTIVE TEACHING & LEARNING</p> <p>Having their own ideas thinking of ideas Finding ways to solve problems Finding new ways to do things</p> <p>Making links Making links and noticing patterns in their experience Making predictions Testing their ideas Developing ideas of grouping, sequences, cause and effect</p> <p>Choosing ways to do things Planning, making decisions about how to approach a task, solve a problem and reach a goal Checking how well their activities are going Changing strategy as needed Reviewing how well the approach worked</p>	<p>NATIONAL CURRICULUM: During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions.</p>		<p>NATIONAL CURRICULUM: During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: 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 identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.</p>		<p>NATIONAL CURRICULUM: During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments.</p>	
Plants	<p>DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD</p> <p>Explore the natural world around them. Describe what they see, hear and feel whilst outside.</p> <p>The Natural World ELG Explore the natural world around them, making observations and drawing pictures of animals and plants; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>NATIONAL CURRICULUM: Pupils should be taught to: identify and name a variety of common wild and garden plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>NATIONAL CURRICULUM: Pupils should be taught to: observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>NATIONAL CURRICULUM: Pupils should be taught to: identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			
TAUGHT KNOWLEDGE	<p>What does it take for the plants to grow? What do they need?</p>	<p>Enquiry: How can we sort plants into different groups? How do the things I plant change over time? Know the difference between a leaf, a plant and a flower (observation, explanation)</p>	<p>Enquiry: Do plants grow healthier in the light or dark? How do bulbs and seeds change over time? Know how a seed or bulb grows into a mature plant (observation, explanation, investigation)</p>	<p>Enquiry: Does the number of seeds within one plant pot affect the growth of the plants? Understand that plants are made up of different parts and that each part has a specific function (observation, explanation) Recognise that different areas outside have different plants</p>			

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		<p>Know what grows in the school environment (observation, explanation) Observe, sort and classify leaves, plants and flowers (observation, explanation, investigation) Know what is meant by deciduous and evergreen (observation, explanation) Observe, classify and name a selection of leaves and trees (observation, explanation, investigation) Name the parts of a plant (observation) Understand that the 2 main parts of a plant are the root and stem/trunk (observation, explanation) Understand that different parts of a plant perform different functions (observation, explanation) Explain what happens when a seed germinates (observation, explanation, investigation) Explore the link between the size of a seed to the size of a plant (observation, explanation, investigation)</p>	<p>Know how represent a life cycle (observation, explanation) Know how a seed or bulb is produced (observation, explanation) Know that a plant needs water and light to grow and stay healthy (observation, explanation, investigation) Know why a plant needs water and light to grow and stay healthy (observation, explanation, investigation)</p>	<p>growing and begin to link this to consider the reasons why this may be (observation, explanation, investigation) Recognise that there are different stages of a plant life cycle and that seed dispersal is vital to the cycle (observation, explanation) Recognise and observe that seeds come in different shapes and sizes (observation, explanation, investigation) Understand that seeds are designed to ensure they are dispersed away from the mother plant to enable them to have space to grow (observation, explanation, investigation) State the different methods of seed dispersal (explanation) Understand the functions of the parts of a plant. (observation, explanation, investigation) Understand how water is transported within a plant (observation, explanation, investigation)</p>			
WORKING SCIENTIFICALLY		<p>Ask simple questions and recognise that they can be answered in different ways. Observe closely using simple equipment, including magnifying glasses. (observation) Identify and classify trees in the school grounds (observation, explanation, investigation) Use observations and ideas to suggest answers to questions. (observation, explanation) Gather and record data (investigation)</p> <p>Being a scientist: Enable pupils to experience and observe phenomena looking more closely at the natural and humanly constructed world around them.</p>	<p>SC1: To ask questions and record findings in different ways. To observe closely using scientific equipment. (observation) To perform simple tests using scientific equipment. (investigation) To use observations and ideas to suggest answers to questions. (observation, explanation) To gather and record data, drawing simple conclusions (explanation)</p> <p>Being a scientist: Enable pupils to experience and observe phenomena looking more closely at the natural and humanly constructed world around them Encouraged to be curious and ask questions about what they notice. Begin to use simple scientific language to talk about what</p>	<p>SC1: Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests. make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gather, record, classify and present data to help in answering questions. record findings using simple scientific language, drawings, labelled diagrams and tables report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>			

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		<p>Encouraged to be curious and ask questions about what they notice. Begin to use simple scientific language to talk about what they found out communicate their ideas to a range of audiences in a variety of different ways.</p>	<p>they found out communicate their ideas to a range of audiences in a variety of different ways.</p>	<p>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Being a scientist Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. .Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.</p>			
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Vocabulary		leaf, plant, flower, observe, sort, classify, identification, identify, local area, environment, magnifying glass, botanists, trees, leaves, deciduous, evergreen, observe, label, match, name, seed, root, stem, trunk, branches, flower, fruit, function, nutrients, water, sun, earth, food, energy, vitamins, pollen, germinate, time lapse	CONSOLIDATE YEAR 1 seed, bulb, plant, mature plants, germination, growth, survival, life cycle, cyclical, root, stem, light, leaves, flower, fruit, disperse, pollinate, flowering, water, light	CONSOLIDATE YEAR 1 AND 2 VOCABULARY fertilisation, reproduction, dispersal			
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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD Explore the natural world around them.		NATIONAL CURRICULUM: Pupils should be taught to: explore and compare the differences between things that		NATIONAL CURRICULUM: Pupils should be taught to: recognise that living things can be grouped in a variety of ways explore and use classification	NATIONAL CURRICULUM: Pupils should be taught to: describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	NATIONAL CURRICULUM: Pupils should be taught to: describe how living things are classified into broad groups according to common observable

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	<p>The Natural World ELG Explore the natural world around them, making observations and drawing pictures of animals and plants;</p>		<p>are living, dead, and things that have never been alive identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other identify and name a variety of plants and animals in their habitats, including microhabitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>		<p>keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>describe the life process of reproduction in some plants and animals.</p>	<p>characteristics and based on similarities and differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.</p>
<p>TAUGHT KNOWLEDGE</p>	<p>Discover creatures found in the school pond – list some that we already know, add to the list as we discover more (discuss their features) Learn about the three areas of the pond, the surface, the bottom, the shallows and what happens in each area Discover creatures found in other, larger ponds Learn about the lifecycle of a frog Learn about a food chain on pond creatures Learn about the effects of plastic on the environment and discuss ways we can help Make a list of some sea creatures we already know about, add to the list throughout the two weeks What is a coral reef? What is a fish's habitat?</p>		<p>Enquiry: What different habitats are there on planet Earth and what lives in each habitat? Talk about common animals, naming them from pictures. (observation, explanation) Recognise similarities and differences in animals. (observation) Know the basic needs of an animal (explanation) Know that animals live in habitats to which they are suited (explanation) Know how animals adapt to their environment (explanation) Know what is meant by carnivore, herbivore and omnivore, naming animals (explanation) Sort animals into groups based on their diet (explanation) Know the difference between living things, things that are dead and things that have never been alive (explanation) Know where animals obtain their food from (explanation) Know and name sources of food (observation, explanation) Know about food chains (explanation) Know what a producer, consumer, predator and prey are (explanation)</p>		<p>Enquiry: How can living things be grouped and classified? Recognise that living things can be grouped in a variety of ways (MRS GREN) (observation, explanation) Classify animals into vertebrates and invertebrates (observation, explanation, investigation) Know the names of the 3 groups of invertebrates. (observation, explanation) Recognise that animals adapt to live in different habitats (observation, explanation) Use classification keys to answer questions when classifying unknown animals. (observation, explanation, investigation) Know the effects of harming habitats. (observation, explanation) Recognise how damaging our environment can affect living things (through plastic pollution and deforestation) (observation, explanation)</p>	<p>Enquiry: How are the life cycles of animals similar and how are they different? Understand the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (observation, explanation) Understand why plants and animals reproduce. (observation, explanation) Understand how plants and animals reproduce. (observation, explanation)</p>	<p>Enquiry: How can animals, plants and microorganisms be identified, grouped and classified? Understand that living things can be grouped based on their characteristics. (observation, explanation) Understand how to ask questions to divide groups of living things. (observation, explanation, investigation) Understand different animal classes and their characteristics. (observation, explanation)</p>
<p>WORKING SCIENTIFICALLY</p>	<p>Children know about similarities and differences in relation to places, objects, materials and living things</p>		<p>SC1 Ask simple questions and recognise that they can be answered in different ways Identify and classify</p>		<p>SC1: ask relevant questions and use different types of scientific enquiries to answer them</p>	<p>SC1: identify scientific evidence that has been used to support or refute ideas or arguments</p>	<p>SC1: report and present findings from enquiries, including conclusions, causal relationships and</p>

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	Children talk about the features of their own immediate environment and how environments might vary from one another Children describe shapes, spaces, and measures		Use their observations and ideas to suggest answers to questions Being a scientist: They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.		gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings. Being a scientist: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.	Being a scientist: They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.	explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identify scientific evidence that has been used to support or refute ideas or arguments Being a scientist: They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.
Vocabulary	Pond, pond creature names, life cycle, food chain, pond dipping, invertebrate, minibeast, oxygen, gill, microscopic, predator, prey, algae, shallow, deep, marsh Sea creature names, environment, recycling, coral reef, future/sustainable		habitat, micro habitat, adaptability, food, nutrition, needs, carnivore, omnivore, herbivore, features, habitat, environment, suitability, sort, criteria, living, dead, compare, differences, food chain, source, producer, consumer, predator, prey		CONSOLIDATE YEAR 2 VOCABULARY habitats, environments, danger, humans, affect, classification key, habitat, environment, identify, arachnid, mollusc, insect, body part, life processes, movement, reproduction, sensitivity, growth, respiration, excretion, nutrition, life cycle, observation, vertebrates, invertebrates, spine, skeleton, exoskeleton, habitats, internal, external, organs	CONSOLIDATE YEAR 2 AND YEAR 4 VOCABULARY life cycle, human, mammal, amphibian, insect, bird, reproduction, gestation, asexual reproduction, sexual reproduction, cell, gene, sperm, egg, fertilisation, germination, pollination, seed dispersal	CONSOLIDATE YEAR 2, YEAR 4 AND YEAR 5 VOCABULARY vertebrate, invertebrate, species, classification, sorting diagram, mammal, fish, bird, reptile, amphibian, characteristics, classification

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD	NATIONAL CURRICULUM: Pupils should be taught to: identify and name a	NATIONAL CURRICULUM: Pupils should be taught to:	NATIONAL CURRICULUM: Pupils should be taught to: identify and describe the	NATIONAL CURRICULUM: Pupils should be taught to: describe the simple functions of	NATIONAL CURRICULUM: Pupils should be taught to: describe the changes as humans	NATIONAL CURRICULUM: Pupils should be taught to: identify and name the main

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humans	<p>Explore the natural world around them. Describe what they see, hear and feel whilst outside.</p> <p>The Natural World ELG Explore the natural world around them, making observations and drawing pictures of animals and plants;</p>	<p>variety of common animals including fish, amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores Science – key stages 1 and 2 8 Statutory requirements describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p>	<p>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.</p>	<p>functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>develop to old age</p>	<p>parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans.</p>
TAUGHT KNOWLEDGE	<p>What animals do we find on the farm? What do animals give us? What do animals do for us? What do plants from a farm give us? Explore different types of farm around the world – what are the similarities and difference? – link to Fairtrade Harvest – what does it mean? Learn about different types of farm machinery</p> <p>What is a nocturnal animal? Can you sort the nocturnal animals?</p> <p>What do bears have? What can bears do? What are bears? To become aware of the 8 bears of the world, to know about their individual characteristics and the similarities between them. Use positional language to describe relative position linking to the repeated refrains within The Bear Hunt</p> <p>To know what we need to give our bodies to keep healthy (food, water, sleep, dental hygiene, washing hands etc.) To know the importance of exercise, explore different types of exercise</p>	<p>Enquiry: Are all animals the same? Do the oldest children have the longest feet? How can we care for our planet? Talk about common animals. (explanation) Name animals from pictures. (observation) Recognise similarities and differences in animals. (observation) Discuss different ways animals could be sorted into 2 groups. (investigation, explanation) Know what is meant by carnivore, herbivore and omnivore. (explanation) Name animals that are carnivores, omnivores or herbivores (observation) Sort animals into groups based on their diet (explanation) Name animal body parts (observation) Recognise similarities and differences in animal body parts (observation, explanation) Discuss why an animal has a particular body feature (observation, explanation) Explore their role in looking after the planet to create a sustainable future for</p>	<p>Enquiry: How can animals be grouped based on their needs for survival? Know what is meant by the term offspring (explanation) Describe a selection of lifecycles (explanation) Understand that animals, including humans have offspring which grow into adults (observation, explanation) Know what the basic needs for survival are (water, food, air) (explanation) Know why we need food, water and air to survive (observation, explanation) Know what would happen if 1 or more essential was taken away (observation, explanation) Know where to find the essentials in different environments (observation, explanation, investigation) Know why exercise is important to humans (PSHE/PE) (observation, explanation) Know about different types of food and nutrition (PSHE/DT) (observation, explanation) Know how to balance a diet (PSHE/DT) (observation, explanation) Know how to stay healthy and hygienic (PSHE) (observation, explanation)</p>	<p>Enquiry: How can animals be sorted and grouped based on their skeletons? Know that animals, including humans, need the right types of nutrition (balanced diet). PSHE (observation, explanation) Identify that animals, including humans, need the right amounts of nutrition and a balanced diet. PSHE (observation, explanation) Know that skeletons support the body of the human or animal and that some skeletons are outside of the body. (observation, explanation) Know that skeletons protect the organs inside the body. (observation, explanation) Name parts of the human skeleton: skull, backbone, rib cage and understand the function of the parts of the human skeleton. (observation, explanation) Know that animals with skeletons have muscles attached to the bones. (observation, explanation) Know that a muscle has to contract (shorten) to make a bone move. (observation, explanation, investigation) Know that muscles act in pairs and that when someone is exercising or moving fast, the muscles work hard. (observation, explanation, investigation)</p>	<p>Enquiry: What is the digestive system and how does it work? How has human activity affected food chains? Identify the different types of teeth in humans Explain the basic functions of the different types of teeth Understand the journey of food from the start, teeth, to the end, excretion (this should be remembered from MRS GREN). Construct and interpret a variety of food chains. Understand a food chain To understand that the arrow represents the flow of energy</p>	<p>Enquiry: How are the life cycles of animals similar and how are they different? Know that there are 6 stages in the human lifecycle (observation, explanation) Know that each stage of the lifecycle shows development (observation, explanation) Understand the different gestation periods of other mammals (observation, explanation) Understand that the length of time in the womb for humans and other mammals varies considerably (observation, explanation) Compare different gestation periods to humans and look for patterns in data (observation, explanation, experimentation)</p>	<p>Enquiry: What is the circulatory system and how does it work? Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. (observation, explanation, experimentation) Describe the ways in which nutrients and water are transported within animals, including humans. (observation, explanation)</p>

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	<p>Explore medicine and the dangers that surround it Discuss healthy food choices and the importance of moderation becoming aware of the food groups Senses</p> <p>To understand that some animals lay eggs and some animals give birth to live young Explore the 5 types of animal which lay eggs (birds, reptiles, amphibians, insects and fish), listing examples of each Are eggs alive? Think about how we can keep an egg safe? How can we safely transport an egg</p>	<p>themselves and future generations. (observation, explanation, investigation) To think about the positive impact they can have on the planet, both locally and in the wider world. (observation, explanation)</p>					
WORKING SCIENTIFICALLY	<p>Children make observations of animals and plants and explain why some things occur, and talk about changes Children use what they have learnt about media and materials in original ways, thinking about uses and purposes</p>	<p>SC1: ask simple questions and recognise that they can be answered in different ways observe closely identify and classify use their observations and ideas to suggest answers to questions gather and record data to help in answering questions</p> <p>Being a scientist: Enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to</p>	<p>SC1: ask simple questions and recognise that they can be answered in different ways observe closely, using simple equipment identify and classify use their observations and ideas to suggest answers to questions</p> <p>Being a scientist: Enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. :They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.</p>	<p>SC1: ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings. Being a scientist: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to</p>	<p>SC1: ask relevant questions and use different types of scientific enquiries to answer them gather, record, classify and present data in a variety of ways to help in answering questions report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings. Being a scientist: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to</p>	<p>SC1: record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Being a scientist: They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.</p>	<p>Sc1: identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Being a scientist: They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.</p>

Science progression map

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		talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.		<p>raise their own questions about the world around them.</p> <p>They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.</p> <p>They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.</p> <p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</p> <p>With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.</p> <p>They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.</p> <p>Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.</p>	appropriate for different audiences.		
Vocabulary	Harvest, crop, farm, Fairtrade, animals, barn, hay bale, field, tractor, farmer, dairy Nocturnal He-bear, she-bear, habitat, diet, fur, paw, claw, humane, mammal, cub, hibernation, omnivore, carnivore, herbivore,	mammal, reptile, fish, amphibian, human, bird, animal group, sort, criteria, similarities, differences, carnivore, herbivore, omnivore, diet, sort, identify, food group, explanation, feature, body parts, structure, claw, hoof, paw, flipper, antler, horn, tusk,	offspring, baby, adult, lifecycle, reproduction, change, grow, needs, survival, food, water, air, carbon dioxide, lungs, gills, essentials, environments, scavenge, graze, shelter, absorb, hunt, gather, healthy, diet, exercise, hygiene, prepare, nutrition, balanced diet	CONSOLIDATE YEAR 1 AND 2 VOCABULARY nutrition, diet, protein, carbohydrates, dairy, vitamins, minerals, balanced, healthy, human, animal, skeleton, exoskeleton, invertebrate, protective cage, organs, bones, ribs, heart, lungs, backbone, vertebrae, vertebrate, skull,	CONSOLIDATE YEAR 1, 2 AND 3 VOCABULARY food chain, energy, primary/secondary/tertiary consumer, producer, predator, digestive system, oesophagus, stomach acid, large intestine, bile, small intestine, anus, rectum, teeth, molars, pre molars, wisdom, canines, incisors, baby	CONSOLIDATE YEAR 1,2,3, AND 4 VOCABULARY life cycle, human, mammal, gestation periods, foetus, womb, conception, growth, development, baby, childhood, adolescent, juvenile, adulthood, old age, growth, development	CONSOLIDATE YEAR 1,2,3, 4 AND 5 VOCABULARY circulatory system, arteries, veins, heart, pulse rate, oxygenated and deoxygenated blood cells, nutrients, nutrition, water, system, digestive, blood, blood vessels, heart, lungs, stomach, gall bladder, liver, small intestine, large intestine, pancreas, liver,

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	winter, bear Healthy, moderation, safety, medicine, well-being, nurse, nutrition, fat, sugar, protein, carbohydrates, minerals, vitamins Egg, hatch, mammal, oviparous (birds, reptiles, amphibians, insects, fish), shell, membrane, albumen (white), air cell, germinal disc, classification, fragile, delicate	skin, fur, feathers, scales, wings, beak, gills, fin, tentacles		muscle, contract	teeth, adult teeth		rectum, anus, healthy, lifestyle, diet, exercise, food, water, body, human, organs, vitamins, minerals, protein, fats, carbohydrates, water, fibre, impact, evidence, smoking, drugs, legal, illegal, alcohol, kidneys, lungs, air sacs (alveoli), brain.
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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evolution and inheritance				NATIONAL CURRICULUM: Pupils should be taught to: compare and group together different kinds of rocks on the			NATIONAL CURRICULUM: Pupils should be taught to: recognise that living things have changed over time and that fossils

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				<p>basis of their appearance and simple physical properties</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>recognise that soils are made from rocks and organic matter.</p>			<p>provide information about living things that inhabited the Earth millions of years ago</p> <p>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
TAUGHT KNOWLEDGE	<p>Learn when the dinosaurs lived. (observation, explanation)</p> <p>What happened to the dinosaurs?</p> <p>Why are there no dinosaurs living now?</p> <p>Learn where the dinosaurs lived. What was their habitat?</p> <p>Understand that there are many types of dinosaur and list the dinosaurs we already know about – Which are herbivores? Which are carnivores? Which are omnivores?</p> <p>Learn about fossils – What are they? How are they formed? Where can we find them?</p>			<p>Enquiry: How can rocks be identified and grouped based on their properties?</p> <p>How are fossils formed?</p> <p>Know that soils are made up of different organic materials. (observation, explanation, investigation)</p> <p>Know that soils can be different. (observation, explanation, investigation)</p> <p>Know that fossils are formed from living things. (observation, explanation)</p> <p>Understand that living things are buried to form a fossil. (observation, explanation)</p> <p>Compare and group different types of rocks. (observation, explanation, investigation)</p> <p>Observe some of the similarities and differences between rocks. (observation, explanation, investigation)</p> <p>Describe different types of rocks. (observation, explanation)</p> <p>Group together different rocks. (observation, explanation, investigation)</p>			<p>CONSOLIDATE YEAR 3 ROCKS AND YEAR 5 ANIMALS, INCLUDING HUMANS</p> <p>Enquiry: How have fossils changed over time and does this provide evidence for evolution?</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (observation, explanation, investigation)</p> <p>Know that fossils are evidence for evolution. (observation, explanation)</p> <p>Understand that living things produce offspring of the same kind and that offspring are not identical to parents. (observation, explanation)</p> <p>Understand that DNA carries genetic material from parent to offspring. (observation, explanation)</p> <p>Understand that successful adaptation can lead to evolution. (observation, explanation)</p> <p>Know that many scientists have researched evolution for many years. (observation, explanation)</p> <p>Know that Charles Darwin, Mary Anning and Alfred Wallace are scientists who thought about evolution. (observation, explanation)</p> <p>Know that all of the work that scientists do helps us to understand where we have come from. (observation, explanation)</p>
WORKING SCIENTIFICALLY	<p>Children make observations of animals and plants and explain why some things occur, and talk about changes</p>			<p>SC1:</p> <p>ask relevant questions and use different types of scientific enquiries to answer them</p> <p>set up simple practical enquiries, comparative and fair tests</p>			<p>SC1</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p>

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							<p>Identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Being a scientist Use their science experiences to: explore ideas and raise different kinds of questions; Use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas and talk about how scientific ideas have developed over time</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>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, make predictions for new values, suggest improvements and raise further questions</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> <p>Being a scientist: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should learn how to use new equipment, such as data loggers, appropriately.</p>				

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				<p>They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.</p> <p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</p> <p>With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.</p>			
Vocabulary	Extinct, omnivore, herbivore, carnivore, volcano, lava, habitat, museum, fossil, rock, archaeologist, palaeontologist, diet, skeleton, bone, skull excavate, meteorite, frill, warm-blooded, club, horn, habitat			<p>CONSOLIDATE YEAR 1 AND YEAR 2 VOCABULARY</p> <p>sedimentary rocks, metamorphic rocks, igneous rocks, texture, heavy, rigid, fossil, geologist, layers, buried, paleologist (someone who studies rocks in the past), topsoil, humus, decomposing, weathering, taxonomy of soils, plasticity, structure, grain size, percolation rates, clay, sandy soil, silt</p>			<p>CONSOLIDATE YEAR 3 ROCKS AND YEAR 5 ANIMALS, INCLUDING HUMANS VOCABULARY</p> <p>DNA, parent, offspring, inheritance, genes, genetic material, cells, inherited characteristics, evolution, theories, scientists, Darwin, Wallace, Anning, evolutionary theory, adaptation, evolution, descendants, ancestors, fossil, record</p>

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD	NATIONAL CURRICULUM:					

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changes	<p>Explore the natural world around them. Describe what they see, hear and feel whilst outside.</p> <p>The Natural World ELG Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. 					
TAUGHT KNOWLEDGE	<p>Start with an Autumn walk, What do you see? What do you hear?</p> <p>What changes do you notice?</p> <p>Can you describe the temperature?</p> <p>Discuss the changes between seasons. (observation, explanation, investigation)</p>	<p>Enquiry: What are the main changes in each season? Know the four seasons are spring, summer, autumn and winter. (observation, explanation)</p> <p>Know that colder weather comes in autumn and winter. (observation, explanation)</p> <p>Know that warmer weather comes in spring and summer. (observation, explanation)</p> <p>Recognise the weather that is associated with the seasons (observation, explanation)</p> <p>Describe the weather that is associated with the seasons (observation, explanation)</p> <p>Know that our days of sunlight are longest in the summer and shortest in the winter. (observation, explanation)</p>					
WORKING SCIENTIFICALLY	<p>Children make observations of animals and plants and explain why some things occur, and talk about changes</p> <p>Children use what they have learnt about media and materials in original ways, thinking about uses and purposes</p>	<p>SC1 Ask simple questions and recognise that they can be answered in different ways</p> <p>Being a scientist Enable pupils to experience and observe phenomena, looking more closely at the natural world around them They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time They should begin to use simple scientific language to talk about what they have</p>					

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		found out and communicate their ideas to a range of audiences in a variety of ways					
Vocabulary	Autumn, change, yellow, brown, red, orange, leaves, pumpkin, autumn festivals, pine cone, nuts, harvest, conkers, chestnuts, season, weather, deciduous, evergreen, seasons, Spring, Summer, Autumn, Winter, warm, cool, hibernate, grow, change, weather, wind, rain, sun, fog, snow, suitability						

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Everyday materials	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD Explore the natural world around them.	NATIONAL CURRICULUM: Pupils should be taught to:	NATIONAL CURRICULUM: Pupils should be taught to: identify and compare the suitability of a variety of		NATIONAL CURRICULUM: Pupils should be taught to: compare and group materials together, according to whether	NATIONAL CURRICULUM: Pupils should be taught to: compare and group together everyday materials on the basis of their	

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<p>Uses of everyday materials</p> <p>States of matter</p> <p>Properties and changes of materials</p>	<p>Describe what they see, hear and feel whilst outside.</p> <p>The Natural World ELG Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>distinguish between an object and the material from which it is made</p> <p>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>describe the simple physical properties of a variety of everyday materials</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>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>properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <p>know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	
<p>TAUGHT KNOWLEDGE</p>		<p>Enquiry: Which material would be the best for a pair of curtains?</p> <p>Name a range of everyday materials. (observation)</p> <p>State the materials that objects are made from (observation, explanation)</p> <p>Sort objects based on their materials (observation, explanation, investigation)</p> <p>Sort materials based on their properties. (observation, explanation, investigation)</p> <p>State why a material is fit for a purpose (observation, explanation, investigation)</p>	<p>Enquiry: Which material would be the best for an umbrella?</p> <p>Name common materials. (observation)</p> <p>Know the uses of materials (observation, explanation)</p> <p>Consider creative uses of materials</p> <p>Know why materials are suitable for specific purposes (observation, explanation)</p> <p>Know how squashing, bending, twisting and stretching materials changes the shape of an object (observation, explanation, experimentation)</p>	<p>Enquiry: How does the temperature of the water affect the time it takes for ice to melt?</p> <p>Understand that gases are formed when liquids evaporate and that when a gas is cooled it condenses to form a liquid. (observation, explanation, investigation)</p> <p>Understand that gases move and flow more easily than liquids and in all directions. (observation, explanation)</p> <p>Understand that gases differ from solids and liquids in that they do not maintain their shape and volume but spread out to fill the space they are in. (observation, explanation)</p> <p>Observe and understand the 3 different states of water. (observation, explanation, investigation)</p> <p>Understand that water evaporates into the air: the sun heats up water on land, and in rivers, lakes and seas and turns it into water vapour. The water vapour rises into the air. (observation, explanation)</p> <p>Understand that water vapour condenses into clouds: water vapour in the air cools down and changes back into tiny drops of liquid water, forming clouds. (observation, explanation)</p>	<p>Enquiry: Which material is the best insulator of heat?</p> <p>Which changes are reversible and which are irreversible?</p> <p>Revise what is meant by the term materials and properties. (observation, explanation)</p> <p>Understand the meaning of the terms opaque, brittle, thermal, transparent, flexible, insulator, soluble, waterproof, conductor, translucent, shiny, synthetic, absorbent, rigid, natural, hard (observation, explanation, investigation)</p> <p>Know that materials can be grouped according to their properties. (observation, explanation, investigation)</p> <p>Know that objects are made from materials according to their suitability and specific properties (tested by scientists) (observation, explanation, investigation)</p> <p>Know that conductors let energy flow through them (for example, electrical or thermal energy). (observation, explanation)</p> <p>Know that heat energy travels through solids because of conduction. (observation, explanation, investigation)</p> <p>Know that materials that do not conduct heat well are heat insulators. (observation, explanation)</p>	

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					<p>Recognise that water falls as precipitation: the clouds get heavy and water falls back to the earth in the form of rain or snow. (observation, explanation)</p> <p>Understand that water returns to the sea: rainwater runs over the land and collects in lakes or rivers, which take it back to the sea. (observation, explanation)</p> <p>Know that cooling means to reduce the temperature whereas freezing means to reduce the temperature until a substance turns from a liquid to a solid. (observation, explanation, investigation)</p> <p>Know that heating means to increase the temperature whereas boiling means to increase the temperature of a liquid until bubbles start to form. (observation, explanation, investigation)</p> <p>Know that vapour is a gas that is normally a liquid at room temperature. (observation, explanation)</p> <p>Know that we measure temperature in degrees Celsius (°C). That 0°C is the temperature at which water freezes and 100°C is the temperature at which water boils. That things can be much hotter than 100°C or much colder than 0°C (when we start using negative numbers). (observation, explanation, investigation)</p>	<p>Understand the difference between reversible and irreversible change using filtering, sieving and evaporation. (observation, explanation, investigation)</p> <p>Understand the difference between soluble and insoluble substances. (observation, explanation, investigation)</p> <p>Understand the difference between filtration, evaporation and sieving to separate substances. (observation, explanation, investigation)</p> <p>Know that the starting materials in a chemical reaction are called the reactants. (observation, explanation, investigation)</p> <p>Know that reactants react with each other to form a completely new substance known as the product. (observation, explanation, investigation)</p> <p>Know that rust is the crumbly, brown material which is caused by the chemical reaction of iron, water and oxygen. (observation, explanation)</p>	
WORKING SCIENTIFICALLY		<p>SC1: ask simple questions and recognise that they can be answered in different ways perform simple tests use their observations and ideas to suggest answers to questions gather and record data to help in answering questions</p> <p>Being a scientist: They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific</p>	<p>SC1: ask simple questions and recognise that they can be answered in different ways observe closely, using simple equipment perform simple tests identify and classify use their observations and ideas to suggest answers to questions gather and record data to help in answering questions</p> <p>Being a scientist: Enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and</p>		<p>SC1: ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>	<p>SC1: plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in</p>	

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		<p>enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information.</p> <p>They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.</p>	<p>ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.</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, make predictions for new values, suggest improvements and raise further questions</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> <p>Being a scientist: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.</p> <p>They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them</p> <p>They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</p> <p>They should learn how to use new equipment, such as data loggers, appropriately.</p> <p>They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.</p> <p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</p> <p>With support, they should identify new questions arising from the data, making predictions for new</p>	<p>oral and written forms such as displays and other presentations</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Being a scientist: Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</p> <p>They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately.</p> <p>They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</p> <p>They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</p> <p>They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.</p>
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					values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.		
Vocabulary		Suitable, construct, transparent, properties, hard, soft, strong, weak, glass, brick, break, investigation, Fair test	CONSOLIDATE YEAR 1 VOCABULARY identify, compare, material, suitability, uses, properties, wood, metal, plastic, glass, brick, rock, paper, cardboard, shape, solid, change, alter, squashing, bending, twisting, stretching		CONSOLIDATE YEAR 1, YEAR 2, YEAR 3 VOCABULARY state, matter, solid, liquid, gas, evaporate, condense, flow, volume, classify, criteria, water cycle, H ₂ O, evaporated, precipitation, vapour, states of matter, heating, boiling, cooling, freezing, gas, vapour, temperature, rate, predict, plan, variables, measure, record, conclude	CONSOLIDATE YEAR 1, YEAR 2, YEAR 3, YEAR 4 VOCABULARY opaque, brittle, thermal, transparent, flexible, insulator, soluble, waterproof, conductor, translucent, shiny, synthetic, absorbent, rigid, natural, hard, conductor, energy, electrical, thermal, solid, liquid, gas, soluble, insoluble, reversible, irreversible, heating, cooling, substance, solution, separation, filtration, sieving, evaporating, dissolving, mixing, states of matter, chemical reaction, reactant, product, physical change, gas, heat, react	

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD Explore the natural world around them.			NATIONAL CURRICULUM: Pupils should be taught to: recognise that they need light in order to see things and that dark is the absence of light			NATIONAL CURRICULUM: Pupils should be taught to: recognise that light appears to travel in straight lines use the idea that light travels in

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	<p>Describe what they see, hear and feel whilst outside.</p> <p>The Natural World ELG Explore the natural world around them, making observations and drawing pictures of animals and plants;</p>			<p>notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change.</p>			<p>straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
<p>TAUGHT KNOWLEDGE</p>	<p>What is a light source? (observation, explanation, investigation)</p> <p>Children to sort objects into light sources and non-light sources? (observation, explanation, investigation)</p>			<p>Enquiry: How does the distance between the light source and the object affect the size of a shadow? Investigate how shadows alter. (observation, explanation, investigation) Understand that we need light to see. (observation, explanation) Understand that light can be created by man-made or natural sources. (observation, explanation) Understand that objects can reflect light as well as create it. (observation, explanation, investigation) Understand that light reflects from different surfaces (observation, explanation, investigation) Understand that we see different colours/ surfaces differently. (observation, explanation)</p>			<p>Enquiry: How does the distance from a light source affect the size of the shadow? That light travelling from a light source will always travel in a straight line. (observation, explanation) That light reflecting off an object reflects off it at the same angle it shines onto it. (observation, explanation) That we see when light is reflected off a surface and it enters our eyes. (observation, explanation) That objects can be seen because they reflect light into the eye. (observation, explanation) Understand how shadows are formed. (observation, explanation, investigation) Describe what happens to the shape of a shadow as distance from a light source changes. (observation, explanation, investigation)</p>
<p>WORKING SCIENTIFICALLY</p>				<p>SC1: Ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables report on findings from enquiries, including oral and written</p>			<p>SC1: plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests report and present findings from enquiries, including conclusions, causal relationships and</p>

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				<p>explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Being a scientist Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them They should learn how to use new equipment appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources</p>			<p>explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Being a scientist Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.</p>

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				might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.			
Vocabulary	Light, dark, moon, sun, shadow, candle, dim, light source, mirror, fire, lantern, candle			CONSOLIDATE EYFS VOCABULARY source, reflection, opaque, translucent, transparent, shadow, safety, glasses, source of light, natural source, protection			CONSOLIDATE YEAR 3 VOCABULARY light, source, travel, reflect, angle, beam, mirror, shadow, test, predict, fair test, variables, control, record, graph, axis, conclusion

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces and magnets				NATIONAL CURRICULUM: Pupils should be taught to: compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a		NATIONAL CURRICULUM: Pupils should be taught to: explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air	

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				<p>distance</p> <ul style="list-style-type: none"> observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing. 		<p>resistance, water resistance and friction, that act between moving surfaces</p> <ul style="list-style-type: none"> recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	
TAUGHT KNOWLEDGE				<p>Enquiry: How does the material on the ramp affect the distance a car travels? Are all metals magnetic? Understand that pushes and pulls require contact between 2 objects (observation, explanation, investigation) Understand that some forces work without any contact or from a distance (observation, explanation, investigation) Understand that when we push and pull an object it can move the object, change the shape of the object or make the object change direction. (observation, explanation, investigation) Know that a compass is a tiny magnet. (explanation) Know that the Earth is a giant magnet and that magnets have 2 poles, those that attract and those that repel (explanation) Understand that a magnet is any object that generates its own magnetic force, called a magnetic field. (explanation) Know that one end of a 'bar' magnet is called the north pole and the opposite is the south pole and that magnetic materials will be attracted to the magnet (stick) (observation, explanation, investigation) Know that materials can be sorted by their properties and that materials are used for specific purposes due to their properties (observation, explanation, investigation)</p>		<p>Enquiry: Does the size of a parachute affect the time it takes for it to fall to the ground? Understand there are different types of forces including friction, gravity, up thrust, thrust, magnetism, air resistance and buoyancy. (observation, explanation, investigation) Understand that forces can be balanced and unbalanced. (observation, explanation) Understand that more than one force can be acting at a time. (observation, explanation) Understand the difference between weight and mass. (observation, explanation) Understand gravity is a force pulling objects towards the centre of the Earth. (observation, explanation, investigation) Understand what air resistance is. (observation, explanation) Understand what gravity is. (observation, explanation) Understand that two forces can push against each other. (observation, explanation) Understand how to use a newton meter. (observation, explanation, investigation) Understand what friction is. (observation, explanation) Investigate how levers work; exploring how the position of fulcrum, load and effort impacts on use. (observation, explanation, investigation) Investigate how pulleys work and how the number of pulleys used changes the effort required. (observation, explanation, investigation)</p>	

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						Draw diagrams that explain the forces, loads, weights and efforts for levers and pulleys. (observation, explanation)	
WORKING SCIENTIFICALLY				<p>SC1: ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment gather, record, classify and present data in a variety of ways to help in answering questions 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 use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Being a scientist: At Lower Key Stage Two: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and</p>		<p>Sci: plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>Being a scientist: Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. . They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</p>	

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				<p>relationships and decide what data to collect to identify them</p> <p>They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</p> <p>They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.</p> <p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</p> <p>With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.</p> <p>They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.</p> <p>Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences</p>		<p>They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.</p>	
Vocabulary				<p>push, pull, force, surface, vinyl, wood, ice, carpet, friction, measure, compare, predict, explain, conclude, magnetic, non magnetic, magnetism, poles, attract, repel, force, north pole, south pole, iron, materials, properties, sort, compare</p>		<p>CONSOLIDATE YEAR 3 VOCABULARY</p> <p>force, balanced, unbalanced, push, pull, gravity, friction, air resistance, water resistance, gravity, Newton, newton meter, mass, weight, levers, pulleys, fulcrum, load, effort, weights, mechanisms, force, load</p>	

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and space						<p>NATIONAL CURRICULUM:</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon 	

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						as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	
TAUGHT KNOWLEDGE	Learn what a shadow is. How does our shadow change as the sun moves? How do we see the moon? Learn about the sun orbiting and reflecting on the moon and the earth turning on its axis. (observation, explanation, investigation) Understand that there are different planets, learning the names of them and their features. (observation, explanation) Understand what gravity is. (observation, explanation) What is a star? What is a constellation? When did the first person walk on the moon? What was their name? How many people have been to the moon?					Enquiry: How have ideas about the Solar System changed over time? Understand that it takes a year for the Earth to orbit the sun. (observation, explanation) Know the sun is a star at the centre of our solar system. (observation, explanation) Understand the other planets in the solar system take different lengths of time to orbit the sun. (observation, explanation, investigation) Recognise the position of the planets in the solar system. (observation, explanation) Know that a moon is a celestial body that orbits a planet. (observation, explanation) Recognise that the Earth, Sun and Moon are spherical. (observation, explanation, investigation) Give examples of evidence to prove that the Earth, Sun and Moon are spherical. (observation, explanation, investigation) Explain why people have not always believed that the Earth was spherical. (observation, explanation)	
WORKING SCIENTIFICALLY						SC1 Report and present findings from enquiries, including conclusions, causal relationships and explanations in oral and written forms such as displays and other presentations Identify scientific evidence that has been used to support or refute ideas or arguments Being a scientist Use science experiences to explore ideas and raise different kinds of questions Use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas and talk about how scientific ideas have developed over time	
Vocabulary	Light, dark, moon, sun, beam, orbit, axis, earth Astronaut, planet,					planet, orbit, sun, moon, Earth, solar system, moon, spherical bodies, rotates, axis, day, night, shadows, time zone	

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constellation, star, moon, sun, earth, solar system, axis, orbit, atmosphere, galaxy, launch, gravity, rocket, satellite						
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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound					NATIONAL CURRICULUM: Pupils should be taught to: § identify how sounds are made, associating some of them with something vibrating § recognise that vibrations from		

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					<p>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>		
TAUGHT KNOWLEDGE					<p>Enquiry: How does the distance from the sound source affect the volume of the sound?</p> <p>Understand how sounds are made. (observation, explanation, investigation)</p> <p>Use the term 'volume' to describe the level of sound. (observation, explanation, investigation)</p> <p>Recognise patterns between the volume of a sound and the strength of the vibrations that produced it. (observation, explanation, investigation)</p> <p>Understand the term 'pitch'. (observation, explanation)</p>		
WORKING SCIENTIFICALLY					<p>SCI:</p> <p>Ask relevant questions and use different types of scientific enquiries to answer them</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>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, make predictions for new values, suggest improvements and raise further questions</p>		

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					<p>identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Being a scientist Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them They should learn how to use new equipment appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are</p>		
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					appropriate for different audiences.		
Vocabulary					sound, travel, vibration, source, pitch, volume, decibels, sound wave, ear		

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity					NATIONAL CURRICULUM: Pupils should be taught to: identify common appliances that run on electricity construct a simple series		NATIONAL CURRICULUM: Pupils should be taught to: § associate the brightness of a lamp or the volume of a buzzer with the number and voltage of

Science progression map

Curriculum drivers: The curriculum is underpinned by the school's Curriculum Drivers: Community, Communication and Consolidation. The spiritual, moral, social and cultural development of our pupils and their understanding of the core values of our society are woven through the curriculum and developed through 'The Heatherlands Way' values of independence, resilience, motivation, aspiration and respect.

The knowledge and skills children learn must be co-ordinated and coherent. In order to achieve this in our curriculum, we have identified the key concepts or overarching ideas within each subject. To enable the children to access them, we call these the '**Big Ideas**'. In science these are: **investigation, explanation and observation.**

					<p>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>cells used in the circuit</p> <p>§ compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>§ use recognised symbols when representing a simple circuit in a diagram.</p>
TAUGHT KNOWLEDGE					<p>Enquiry: What materials are conductors or insulators of electricity and is there a pattern?</p> <p>Know that appliances run on electricity. (observation, explanation)</p> <p>Know that electricity is power. (observation, explanation)</p> <p>Know that we use mains electricity or battery power to run appliances and devices. . (observation, explanation)</p> <p>Know what components are required to build a simple circuit. (observation, explanation, investigation)</p> <p>Know how to adapt or change the layout of components. (observation, explanation, investigation)</p> <p>Know that a circuit must be complete to work. (observation, explanation, investigation)</p> <p>Know that a lamp must be part of a complete circuit to light. (observation, explanation, investigation)</p> <p>Recognise that a switch opens and closes a circuit. (observation, explanation, investigation)</p> <p>Understand how a switch turn a lamp on and off. (observation, explanation, investigation)</p> <p>Explain what a switch needs to be made from and why. (observation, explanation)</p> <p>Know that some materials are better conductors of electricity than others. (observation, explanation, investigation)</p> <p>Know that metals are good conductors of electricity, most</p>		<p>Enquiry: How does the voltage in a circuit affect the loudness of a buzzer?</p> <p>Know that electricity can flow through the components in a complete electric circuit. (observation, explanation)</p> <p>Know that you can make bulbs brighter by adding more batteries to the circuit. (observation, explanation, investigation)</p> <p>Know that adding more bulbs to a simple circuit will reduce the electrical energy and make the bulbs dimmer. (observation, explanation, investigation)</p> <p>Know that lengthening the wires in a simple circuit will reduce the electrical energy, as it has further to travel. The extra distance will make the bulb dimmer. (observation, explanation, investigation)</p> <p>Know that you can make buzzers louder by adding more batteries to the circuit. (observation, explanation, investigation)</p> <p>Know that adding more buzzers to a simple circuit will reduce the electrical energy and make them quieter. (observation, explanation, investigation)</p> <p>Know that electrical circuits can be represented by circuit diagrams. (observation, explanation)</p> <p>Understand the various electrical components are shown by using standard symbols in circuit diagrams. (observation, explanation)</p>

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					other materials are not and that metals are used for cables and wires, plastic is used to cover wires and as covers for plugs and switches. (observation, explanation, investigation)	
WORKING SCIENTIFICALLY					<p>SC1: Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries record findings using simple scientific language, drawings, labelled diagrams report on findings from enquiries, including oral and written explanations, displays or presentations of conclusions Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings</p> <p>Being a scientist: Make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. Learn how to use new equipment Recognise when and how secondary sources that might help to answer questions that cannot be answered through practical investigations. Use relevant scientific language to discuss ideas and communicate findings in ways that are appropriate for different audiences.</p>	<p>SC1: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Record data and results of increasing complexity using scientific diagrams and labels, classification keys Report and present findings from enquiries, including conclusions, causal relationships and explanations in oral and written forms such as displays and other presentations</p> <p>Being a scientist: Use science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time</p>
Vocabulary					electricity, circuit, switch, battery, plug, mains, appliance, device, wire, crocodile clip, bulb, buzzer, connection, power, cell, energy, flow, current, conductor, insulator	<p>CONSOLIDATE YEAR 4 VOCABULARY battery, circuit, wire, cell, voltage, components, symbols, bulb, buzzer, cell, motor, series, parallel, crocodile clips, circuit diagram, fuse wire, bright, dim, filament, conductor, insulator</p>