



## St Gregory's Science Knowledge & Skills Progression



	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
WORKING SCIENTIFICALLY	<p><b>DEVELOPMENT MATTERS:</b>  <b>CHARACTERISTICS OF EFFECTIVE TEACHING &amp; LEARNING</b> Having their own ideas ♣ thinking of ideas ♣ Finding ways to solve problems ♣ Finding new ways to do things Making links ♣ Making links and noticing patterns in their experience ♣ Making predictions ♣ Testing their ideas ♣ Developing ideas of grouping, sequences, cause and effect 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><b>NATIONAL CURRICULUM:</b> 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><b>NATIONAL CURRICULUM:</b> 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><b>NATIONAL CURRICULUM:</b> 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>			
	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
PLANTS	<p><b>DEVELOPMENT MATTERS:</b>  <b>UNDERSTANDING THE WORLD</b> To explore the natural world around them. (observation)To describe what they see,</p>	<p><b>NATIONAL CURRICULUM:</b> Pupils should be taught to: ♣ identify and name a variety of common wild and garden plants, including deciduous and</p>	<p><b>NATIONAL CURRICULUM:</b> Pupils should be taught to: ♣ observe and describe how seeds and bulbs grow into mature plants ♣ find out and describe</p>	<p><b>NATIONAL CURRICULUM:</b> Pupils should be taught to: ♣ identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and</p>			

	<p>hear and feel whilst outside. The Natural World ELG To explore the natural world around them, making observations and drawing pictures of animals and plants; To understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>evergreen trees ♣ identify and describe the basic structure of a variety of common flowering plants, including trees</p>	<p>how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>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>Taught Knowledge</p>	<p>To explore what it takes for the plants to grow (investigation) To choose equipment to answer a question.</p>	<p>To know the difference between a leaf, a plant and a flower          To know what grows in the school environment          To observe, sort and classify leaves, plants and flowers          To know what is meant by deciduous and evergreen          To observe, classify and name a selection of leaves and trees          To name the parts of a plant          To understand that the 2 main parts of a plant are the root and stem/trunk          To understand that different parts of a plant perform different functions          To explain what happens when a seed germinates          To explore the link between the size of a seed to the size of a plant (investigation)</p>	<p>To know how a seed or bulb grows into a mature plant          To know how represent a life cycle          To know how a seed or bulb is produced          To know that a plant needs water and light to grow and stay healthy          To know why a plant needs water and light to grow and stay healthy (investigation)</p>	<p>To understand that plants are made up of different parts and that each part has a specific function          To recognise that different areas outside have different plants growing and begin to link this to consider the reasons why this may be (observation)          To recognise that there are different stages of a plant life cycle and that seed dispersal is vital to the cycle          To recognise and observe that seeds come in different shapes and sizes          To understand that seeds are designed to ensure they are dispersed away from the mother plant to enable them to have space to grow          To state the different methods of seed dispersal (explanation)          To understand that germination is the development of a plant</p>			

				<p>from a seed or spore after a period of dormancy</p> <p>To know and understand the requirements of plants for germination and growth (air, light, water, nutrients from soil and room to grow)</p> <p>(investigation)</p> <p>To understand how water is</p>			
Working Scientifically		<p>SC1: To ask simple questions and recognise that they can be answered in different ways.</p> <p>To observe closely using simple equipment, including magnifying glasses. (observation)</p> <p>To identify and classify trees in the school grounds</p> <p>To use observations and ideas to suggest answers to questions. (explanation)</p> <p>To gather and record data (investigation)</p> <p>Being a scientist: To experience and observe phenomena looking more closely at the natural and humanly constructed world around them.</p> <p>To be curious and ask questions about what they notice.</p> <p>To 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>SC1: To ask questions and record findings in different ways.</p> <p>To observe closely using scientific equipment. (observation)</p> <p>To perform simple tests using scientific equipment. (investigation)</p> <p>To use observations and ideas to suggest answers to questions. (explanation)</p> <p>To gather and record data, drawing simple conclusions</p> <p>Being a scientist: To experience and observe phenomena looking more closely at the natural and humanly constructed world around them</p> <p>To be curious and ask questions about what they notice.</p> <p>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>SC1: To ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>To set up simple practical enquiries, comparative and fair tests. (investigation)</p> <p>To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (observation)</p> <p>To gather, record, classify and present data to help in answering questions</p> <p>To record findings using scientific language in drawings, labelled diagrams and tables</p> <p>To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise</p>			

				<p>further questions (explanation)</p> <p>To identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Being a scientist</p> <p>To raise questions about the world around them.</p> <p>To begin to make decisions about the most appropriate type of scientific enquiry they might use to answer questions;</p> <p>To 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>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>To collect data from 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>To begin to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</p> <p>To begin to identify new questions arising from the</p>			
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				data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done..			
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			
	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
LIVING THINGS AND THEIR HABITATS	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD To explore the natural world around them. The Natural World ELG To explore the natural world around them, making observations and drawing pictures of animals and plants	NATIONAL CURRICULUM: Pupils should be taught to: ♣ explore and compare the differences between things that 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		NATIONAL CURRICULUM: Pupils should be taught to: ♣ recognise that living things can be grouped in a variety of ways ♣ explore and use classification 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.	NATIONAL CURRICULUM: Pupils should be taught to: ♣ describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ♣ describe the life process of reproduction in some plants and animals.		NATIONAL CURRICULUM: Pupils should be taught to: ♣ describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ♣ give reasons for classifying plants and animals based on specific characteristics

		obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food					
Taught Knowledge	<p>To discover creatures found in the school pond – list some that we already know, add to the list as we discover more (discuss their features) (observation)</p> <p>To learn about the three areas of the pond, the surface, the bottom, the shallows and what happens in each area</p> <p>To discover creatures found in other, larger ponds To learn about the lifecycle of a frog (explanation)</p> <p>To learn about a food chain on pond creatures</p> <p>To learn about the effects of plastic on the environment and discuss ways we can help (investigation)</p> <p>To know what a coral reef is To know what is a fish’s habitat is</p>		<p>To name and discuss common animals from pictures. (observation)</p> <p>To recognise similarities and differences in animals. To know that animals need food, shelter from weather and predators, water, and a place to raise young.</p> <p>To know how a habitat provides for the basic needs of an animal (explanation)</p> <p>To identify and name animals that live in the Florida swamps</p> <p>To know that animals live in habitats to which they are suited, including micro habitats</p> <p>To know that animals depend on their physical features to help them obtain food, keep safe, build homes, withstand weather, and attract mates, adapting to their environment.</p> <p>To know that carnivores are animals that eat only meat.</p> <p>To know that omnivores eat both plants and meat. To name animals that are carnivores, omnivores or herbivores</p> <p>To know the difference between living things,</p>		<p>To recognise that living things can be grouped in a variety of ways (MRS GREN)</p> <p>To classify animals into vertebrates and invertebrates</p> <p>To know and name the 5 different vertebrae groups: mammals, birds, fish, reptiles and amphibians</p> <p>To know the names of the 3 groups of invertebrates</p> <p>To know that animals adapt to live in different habitats (investigation)</p> <p>To use classification keys to answer questions when classifying unknown animals (observation)</p> <p>To be aware of different habitats</p> <p>To explain the effects of harming habitats (explanation)</p> <p>To recognise how damaging our environment can affect living things (through plastic pollution and deforestation)</p>	<p>To understand the differences in the life cycles of a mammal, an amphibian, an insect and a bird (observation/explanation )</p> <p>To understand why plants and animals reproduce</p> <p>To understand how plants and animals reproduce (investigation)</p>	<p>understand how to ask questions to divide groups of living things</p> <p>To understand the 6 different animal classes (invertebrates, mammals, birds, amphibians, reptiles and fish) and their characteristics (observation/explanation )</p> <p>To understand that living things can be grouped based on their characteristics (investigation)</p>

			<p>things that are dead and things that have never been alive</p> <p>To know that animals get their energy from the food they eat</p> <p>To know that plants and animals are the main source of food for all the organisms on earth</p> <p>To know that a food chain shows how energy is passed between plants and animals</p> <p>To know that a producer is something that makes it's own food like green plants as they use photosynthesis.</p> <p>To know that the living things that eat producers and other animals are called consumers.</p> <p>To know that a predator is an animal that eats other animals.</p> <p>To know that animals that are eaten are called prey.</p> <p>To discuss different ways animals could be sorted in to 2 groups according to the needs, habitats or diets (investigation)</p>				
Working Scientifically	<p>To identify similarities and differences in relation to places, objects, materials and living things</p> <p>To talk about the features of the immediate environment and how environments might vary from one another</p> <p>To describe shapes, spaces, and measures</p>		<p>SC1: To ask simple questions and recognise that they can be answered in different ways</p> <p>To identify and classify</p> <p>To use observations and ideas to suggest answers to questions (observation/explanation)</p> <p>Being a scientist: To be curious and ask</p>		<p>To use straightforward scientific evidence to answer questions or to support findings.</p> <p>Being a scientist: To raise questions about the world around them.</p> <p>To make decisions about the most appropriate type of scientific enquiry to answer questions;</p> <p>To recognise when a simple fair test is</p>		<p>identify patterns that might be found in the natural environment.</p> <p>To decide how to record data from a choice of familiar approaches; looking for different causal relationships in their data and identify evidence that refutes or supports their ideas.</p> <p>To use relevant scientific language and</p>

			<p>questions about what they notice.</p> <p>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.</p> <p>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>necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys.</p>		<p>illustrations to discuss, communicate and justify their scientific ideas</p> <p>To discuss and explore how scientific ideas have developed over time</p>
Vocabulary	<p>Pond, pond creature names, life cycle, food chain, pond dipping, invertebrate, minibeast, oxygen, gill, microscopic, predator, prey, algae, shallow, deep, marsh</p> <p>Sea creature names, environment, recycling, coral reef, future/sustainable</p>		<p>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</p>		<p>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</p>	<p>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</p>	<p>CONSOLIDATE YEAR 2, YEAR 4 AND YEAR 5 VOCABULARY vertebrate, invertebrate, species, classification, sorting diagram, mammal, fish, bird, reptile, amphibian, characteristics, classification</p>
	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6



<p>ANIMALS INCLUDING HUMANS</p>	<p>DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD Explore the natural world around them. Describe what they see, hear and feel whilst outside. The Natural World ELG Explore the natural world around them, making observations and drawing pictures of animals and plants;</p>	<p>NATIONAL CURRICULUM: Pupils should be taught to: ♣ identify and name a 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>NATIONAL CURRICULUM: Pupils should be taught to: ♣ 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>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>	<p>NATIONAL CURRICULUM: Pupils should be taught to: ♣ describe the simple functions of 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>NATIONAL CURRICULUM: Pupils should be taught to: ♣ describe the changes as humans develop to old age</p>	<p>NATIONAL CURRICULUM: Pupils should be taught to: ♣ identify and name the main 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>
<p>Taught knowledge</p>	<p>Key questions: 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 (observation/explanation) Harvest – what does it mean? Learn about different types of farm machinery Key questions: What is a</p>	<p>To name common animals from pictures. To recognise similarities and differences in animals. (observation) To discuss different ways animals could be sorted in to 2 groups To know what is meant by carnivore, herbivore and omnivore (explanation) To name animals that are carnivores, omnivores or herbivores</p>	<p>To know what is meant by the term offspring To describe a selection of lifecycles To understand that animals, including humans have offspring which grow into adults To know what the basic needs for survival are and why we need water, food and oxygen To know what would happen if 1 or more life essential was taken away (observation/explanation)</p>	<p>To know that animals, including humans, need the right types of nutrition (balanced diet) To identify that animals, including humans, need the right amounts of nutrition and a balanced diet To know that skeletons support the body of the human or animal To know that some skeletons are outside of the body To know that skeletons protect the organs inside the body</p>	<p>To identify the different types of teeth in humans To explain the basic functions of the different types of teeth (explanation) (communication) To understand the journey of food from the start, teeth, to the end, excretion (this should be remembered from MRS GREN). (observation/investigation) To construct and interpret a variety of food chains.</p>	<p>know that there are 6 stages in the human lifecycle To know that each stage of the lifecycle shows development To understand the different gestation periods of other mammals To understand that the length of time in the womb for humans and other mammals varies considerably To compare different gestation periods to humans and look for</p>	<p>To understand how to keep our heart healthy (pulse rate) (investigation) To understand the parts of the digestive system and to describe the ways in which nutrients and water are transported (observation/explanation) To recognise how diet and exercise impact the human body To recognise the impact of drugs and alcohol on the body</p>

<p>nocturnal animal? Can you sort the nocturnal animals? Key questions: 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. To use positional language to describe relative position linking to the repeated refrains within The Bear Hunt (investigation) To know what we need to give our bodies to keep healthy (food, water, sleep, dental hygiene, washing hands etc.) (explanation) To know the importance of exercise, explore different types of exercise Explore medicine and the dangers that surround it Discuss healthy food choices and the importance of moderation becoming aware of the food groups Senses To understand that some animals lay eggs and some animals give birth to live young (observation) Explore the 5 types of animal which lay eggs (birds, reptiles, amphibians, insects and fish), listing examples of each Key questions: Are eggs alive? Think about how</p>	<p>To sort animals into groups based on their diet To name animal body parts To recognise similarities and differences in animal body parts To discuss why an animal has a particular body feature (communication) To identify the basic parts of the human body including the head, neck, torso, arms and legs explain which part of the body is associated with each of the 5 senses of sight, sound, smell, taste, and touch (investigation/ explanation)</p>	<p>To know where to find the essentials in different environments To know why exercise is important to humans (investigation) To know about different types of food and nutrition and how to balance a diet To know how and why to stay healthy and hygienic</p>	<p>To name parts of the human skeleton: skull, backbone, rib cage To understand the function of the parts of the human skeleton (explanation) To know that animals with skeletons have muscles attached to the bones To know that a muscle has to contract (shorten) to make a bone move (observation/investigation) To know that muscles act in pairs To know that when someone is exercising or moving fast, the muscles work harder</p>	<p>To understand a food chain and the larger food web To understand that the arrow in a food chain represents the flow of energy</p>	<p>patterns in data (observation/investigation/ explanation)</p>	
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	we can keep an egg safe? How can we safely transport an egg						
Working Scientifically	To make observations of animals and plants and explain why some things occur, and talk about changes (observation/explanation) ) To use what they have learnt about media and materials in original ways, thinking about uses and purposes (investigation)	SC1: To ask questions and recognise that they can be answered in different ways To observe closely to identify and classify (observation) To use observations and ideas to suggest answers to questions To gather and record data to help in answering questions (investigation/explanation) Being a scientist: To look closely at the natural and humanly constructed world around them. To be curious and ask questions about what they notice. To develop understanding of scientific ideas by using different types of scientific enquiry to answer questions, including observing changes over a period of time, noticing patterns and classifying To carry out simple comparative tests 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.	SC1: To ask questions and record answers in different ways To observe closely, using scientific equipment To identify and classify (observation) To use observations and ideas to suggest answers to questions (explanation) Being a scientist humanly-constructed world around them. To be curious and ask questions about what they notice. To develop 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, To carry out simple comparative tests To finding things out using secondary sources of information. To use scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.	SC1: To ask relevant questions and use different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests To make systematic and careful observations and, where appropriate, taking accurate measurements using a range of equipment, including thermometers and data loggers (observation/investigation) To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using scientific language, keys, bar charts, and tables To report on findings from enquiries, including oral and written explanations, results and conclusions To use results to draw conclusions, make predictions and raise further questions (explanation) To identify differences and similarities related to simple scientific ideas and processes To use straightforward scientific evidence to answer questions Being a scientist: To make decisions about the most appropriate type of	SC1: To use different types of scientific enquiries to answer questions To gather, record, classify and present data in a variety of ways to help in answering questions (observation/investigation) To report on findings from enquiries, including presenting results and conclusions (explanation) To identify differences, similarities or changes related to simple scientific ideas and processes To use straightforward scientific evidence to answer questions or to support their findings. Being a scientist: To make decisions about what observations to make, how long to make them for and the type of equipment that might be used To know when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. To use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.	SC1: To record data and results of increasing complexity using scientific diagrams and labels To identify scientific evidence that has been used to support or refute ideas or arguments (explanation) Being a scientist: To use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas To talk about how scientific ideas have developed over time.	Sc1: To identify and share scientific evidence that has been used to support or refute ideas or arguments (explanation) Being a scientist: To use and develop strategies to identify and describe living things To use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas To discuss how scientific ideas have developed over time.

				<p>scientific enquiry they might use to answer questions;</p> <p>To recognise when a simple fair test is necessary and help to decide how to set it up</p> <p>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>To collect data from observations and measurements and decide how to record and analyse this data.</p> <p>To look for similarities and differences in data in order to draw simple conclusions and answer questions.</p> <p>To identify new questions arising from the data,</p> <p>To find ways of improving what they have already done.</p> <p>To use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.</p>			
Vocabulary	<p>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, winter, bear Healthy, moderation, safety, medicine, well-</p>	<p>mammal, reptile, fish, amphibian, human, 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, skin, fur,</p>	<p>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</p>	<p>CONSOLIDATE YEAR 1 AND 2 nutrition, diet, protein, carbohydrates, dairy, vitamins, minerals, balanced, healthy, human, animal, skeleton, exoskeleton, invertebrate, protective cage, organs, bones, ribs, heart, lungs, backbone, vertebrae, vertebrate,</p>	<p>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,</p>	<p>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</p>	<p>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</p>

	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	feathers, scales, wings, beak, gills, fin, tentacles, bird,		skull, muscle, contract VOCABULARY	incisors, baby teeth, adult teeth		intestine, large intestine, pancreas, liver, 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.
	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 basis of their appearance and simple physical properties ♣ describe in simple terms how fossils are formed when things that have lived are trapped within rock ♣ recognise that soils are made from rocks and organic matter.			NATIONAL CURRICULUM: Pupils should be taught to: ♣ recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ♣ recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents ♣ identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Taught knowledge	To learn when the dinosaurs lived. Key questions: What happened to the dinosaurs? Why are there no dinosaurs living now? To learn where the dinosaurs lived. Key questions: What was their habitat?			To know that soils are made up of different organic materials. To know that soils can be different. To know that fossils are formed from living things. (explanation) To understand that living things are buried to form a fossil.			CONSOLIDATE YEAR 3 ROCKS AND YEAR 5 ANIMALS, INCLUDING HUMANS To describe in simple terms how fossils are formed when things that have lived are trapped within rock (observation/explanation ) To know that fossils are evidence for evolution

	<p>To understand that there are many types of dinosaur and list the dinosaurs we already know about – Key questions: Which are herbivores? Which are carnivores? Which are omnivores?</p> <p>To learn about fossils – Key questions: What are they? How are they formed? Where can we find them?</p>			<p>To observe some of the similarities and differences between rocks. (observation)</p> <p>To compare and group different types of rocks. (investigation)</p>			<p>To understand that living things produce offspring of the same kind</p> <p>To understand that offspring are not identical to parents (investigation)</p> <p>To understand that DNA carries genetic material from parent to offspring</p> <p>To understand that successful adaptation can lead to evolution</p> <p>To know and compare the research of Charles Darwin, Mary Anning and Alfred Wallace in evolution</p> <p>To understand that the work of scientists helps us to understand where we have come from.</p>
Working Scientifically	<p>To make observations of animals and plants (observation)</p> <p>To explain why some things occur, and talk about changes (explanation)</p>			<p>SC1: To ask relevant questions and use different types of scientific enquiries to answer them</p> <p>To set up simple practical enquiries, comparative and fair tests</p> <p>To make systematic and careful observations (observation)</p> <p>To identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>To use straightforward scientific evidence to answer questions</p> <p>Being a scientist: To raise questions about the world around them.</p> <p>To choose the most appropriate type of</p>			<p>SC1 To report and present findings from enquiries, including conclusions, causal relationships and explanation, in oral and written forms (observation/investigation/ explanation)</p> <p>To Identify scientific evidence that has been used to support or refute ideas or arguments Being a scientist</p> <p>To use science experiences to explore ideas and raise different kinds of questions</p> <p>To use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas</p>

				<p>scientific enquiry to use to answer questions;          To discuss criteria for grouping, sorting and classifying; and use simple keys.          To look for naturally occurring patterns and relationships          To make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.          To look for changes, patterns, similarities and differences in order to draw simple conclusions and answer questions.          To recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.          To use scientific language to discuss ideas</p>			To talk about how scientific ideas have developed over time
Vocabulary	<p>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>			<p>CONSOLIDATE YEAR 1 AND YEAR 2 VOCABULARY          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          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 CHANGES	DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD Explore the natural world around them. Describe what they see, hear and feel whilst outside. The Natural World ELG Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	NATIONAL CURRICULUM: Pupils should be taught to: ♣ observe changes across the four seasons ♣ observe and describe weather associated with the seasons and how day length varies.					
Taught Knowledge	Start with an Autumn walk. (observation) Key questions: What do you see? What do you hear? What changes do you notice? Can you describe the temperature? Discuss the changes between seasons.	To know the four seasons are spring, summer, autumn and winter. To know that colder weather comes in autumn and winter. (observation) To know that warmer weather comes in spring and summer. To recognise the weather that is associated with the seasons (explanation) To describe the weather that is associated with the seasons To know that our days of sunlight are longest in the summer and shortest in the winter (investigation)					
Working Scientifically	To make observations of animals and plants and explain why some things occur, and talk about changes (observation/explanation)	SC1 To ask simple questions and recognise that they can be answered in different ways Being a scientist To look closely at the					



	To use what they have learnt about media and materials in original ways, thinking about uses and purposes	natural world around them To develop understanding of scientific ideas by using different types of scientific enquiry to answer their own questions To observe changes over a period of time 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					
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 Uses of everyday materials States of matter Properties and changes of materials	materials Uses of everyday materials States of matter Properties and changes of materials (non negotiables in bold) DEVELOPMENT MATTERS: UNDERSTANDING THE WORLD To explore the natural world around them. To describe what they see, hear and feel whilst	NATIONAL CURRICULUM: Pupils should be taught to: ♣ distinguish between an object and the material from which it is made ♣ identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ♣ describe the simple physical properties of a variety of everyday	NATIONAL CURRICULUM: Pupils should be taught to: ♣ identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ♣ find out how the shapes of solid objects made from some materials can be changed by squashing,		NATIONAL CURRICULUM: Pupils should be taught to: ♣ compare and group materials together, according to whether they are solids, liquids or gases ♣ observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees	NATIONAL CURRICULUM: Pupils should be taught to: ♣ compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets ♣ know that some materials will dissolve in	

	<p>outside. The Natural World ELG To understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>materials ♣ compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>bending, twisting and stretching.</p>		<p>Celsius (°C) ♣ identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>liquid to form a solution, and describe how to recover a substance from a solution ♣ use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating ♣ give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ♣ demonstrate that dissolving, mixing and changes of state are reversible changes ♣ 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>To name a range of everyday materials. To state the materials that objects are made from To sort objects based on their materials (observation) To sort materials based on their properties. To state why a material is fit for a purpose (investigation/explanation)</p>	<p>To name a wider range of common materials To explain the uses of different materials To know why materials are suitable for specific purposes (explanation) To know how squashing, bending, twisting and stretching materials changes the shape of an object (observation/investigation)</p>		<p>To understand that gases are formed when liquids evaporate and that when a gas is cooled it condenses to form a liquid To understand that gases move and flow more easily than liquids and in all directions To understand that gases differ from solids and liquids in that they do not maintain their shape and volume but spread</p>	<p>To revise what is meant by the term materials To know that materials can be grouped according to their properties To revise what is meant by the term properties To know that materials can be grouped according to their properties To understand the meaning of the terms opaque, brittle, thermal, transparent, flexible,</p>	

					<p>out to fill the space they are in.</p> <p>To observe and understand the 3 different states of water (observation/investigation)</p> <p>To 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.</p> <p>To 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. (explanation) (communication)</p> <p>To recognise that water falls as precipitation: the clouds get heavy and water falls back to the earth in the form of rain or snow.</p> <p>To 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.</p> <p>To explain that cooling means to reduce the temperature whereas freezing means to reduce the temperature until a substance turns from a liquid to a solid</p> <p>To know that heating means to increase the temperature whereas boiling means to increase</p>	<p>insulator, soluble, waterproof, conductor, translucent, shiny, synthetic, absorbent, rigid, natural, hard</p> <p>To know that materials can be grouped according to their properties</p> <p>To know that materials can be grouped according to their properties</p> <p>To know that objects are made from materials according to their suitability and specific properties (tested by scientists)</p> <p>To know how conductors let energy flow through them (for example, electrical or thermal energy). (investigation)</p> <p>To know that heat energy travels through solids because of conduction.</p> <p>To know that materials that do not conduct heat well are heat insulators.</p> <p>To understand the difference between reversible and irreversible change using filtering, sieving and evaporation (observation/explanation)</p> <p>To understand the difference between soluble and insoluble substances</p> <p>To understand the difference between filtration, evaporation</p>	
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					<p>the temperature of a liquid until bubbles start to form</p> <p>To know that vapour is a gas that is normally a liquid at room temperature That we measure temperature in degrees Celsius (<math>^{\circ}\text{C}</math>). That <math>0^{\circ}\text{C}</math> is the temperature at which water freezes and <math>100^{\circ}\text{C}</math> is the temperature at which water boils. That we are used to experiencing room temperature, which is about <math>21^{\circ}\text{C}</math>. That things can be much hotter than <math>100^{\circ}\text{C}</math> or much colder than <math>0^{\circ}\text{C}</math> (when we start using negative numbers).</p>	<p>and sieving to separate substances</p> <p>To know that the starting materials in a chemical reaction are called the reactants.</p> <p>To know that reactants react with each other to form a completely new substance known as the product.</p> <p>To know that rust is the crumbly, brown material which is caused by the chemical reaction of iron, water and oxygen</p>	
Working Scientifically		<p>SC1: To ask simple questions and recognise that they can be answered in different ways</p> <p>To perform simple tests (investigation)</p> <p>To use observations and ideas to suggest answers to questions (observation/explanation)</p> <p>To gather and record data to help in answering questions</p> <p>Being a scientist: To be curious and ask questions about what they notice.</p> <p>To develop understanding of scientific ideas by using different types of scientific enquiry to answer questions, including noticing</p>	<p>SC1: To ask simple questions and recognise that they can be answered in different ways</p> <p>To observe closely, using scientific equipment (observation)</p> <p>To perform tests to identify and classify (investigation)</p> <p>To use observations and ideas to suggest answers to questions (explanation)</p> <p>To gather and record data to help in answering questions</p> <p>Being a scientist: To look closely at the natural and humanly-constructed world around them.</p> <p>To be curious and ask questions about what they notice.</p>		<p>SC1: To ask relevant questions and use different types of scientific enquiries to answer them</p> <p>To set up simple practical enquiries, comparative and fair tests</p> <p>To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (observation/investigation)</p> <p>To gather, record, classify and present data in a variety of ways to help in answering questions</p>	<p>SC1: To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary (investigation)</p> <p>To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (observation)</p> <p>To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>To use test results to make predictions to set up further comparative</p>	

		<p>patterns, grouping and classifying,          To carry out simple comparative tests          To use simple scientific language to talk about what they have found out          To communicate their ideas to a range of audiences in a variety of ways</p>	<p>To develop understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including noticing patterns, grouping and classifying          To carry out simple comparative tests, and finding things out using secondary sources of information.          To use scientific language to talk about what they have found out          To communicate their ideas to a range of audiences in a variety of ways.</p>		<p>To record findings using simple scientific language, drawings or labelled diagrams,          To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions          To use results to draw simple conclusions and raise further questions          To identify differences, similarities or changes related to simple scientific ideas and processes (explanation)          To use straightforward scientific evidence to answer questions or to support their findings.          Being a scientist: To raise questions about the world around them.          To make decisions about the most appropriate type of scientific enquiry they might use to answer questions;          To recognise when a simple fair test is necessary and help to decide how to set it up;          To look for naturally occurring patterns and relationships and decide what data to collect to identify them          To make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. To use new equipment, such as data loggers,</p>	<p>and fair tests report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results (explanation)          To identify scientific evidence that has been used to support or refute ideas or arguments          Being a scientist: To explore ideas and raise different kinds of questions; To select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;          To recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.          To make decisions about what observations to make, what measurements to use and how long to make them for          To decide how to record data from a choice of familiar approaches;          To look for different causal relationships in their data and identify evidence that refutes or supports their ideas.          To use test results to identify when further tests and observations might be needed; To recognise which secondary sources will</p>	
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					<p>appropriately to collect data To make observations and measurements, use notes, simple tables and standard units To look for changes, similarities and differences in data in order to draw simple conclusions and answer questions.</p> <p>To 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. To recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations . To use relevant scientific language to discuss ideas and communicate findings in ways that are appropriate for different audiences.</p>	<p>be most useful to research their ideas and begin to separate opinion from fact.</p> <p>To use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas To talk about how scientific ideas have developed over time</p>	
Vocabulary		Suitable, construct, transparent, properties, hard, soft, strong, weak, glass, brick, break, investigation, Fair test	<p>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</p>		<p>CONSOLIDATE YEAR 1, YEAR 2, YEAR 3 VOCABULARY state, matter, solid, liquid, gas, evaporate, condense, flow, volume, classify, criteria, water cycle, H<sub>2</sub>O, evaporated, precipitation, vapour, states of matter, heating, boiling, cooling, freezing, gas, vapour, temperature, rate,</p>	<p>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,</p>	

					predict, plan, variables, measure, record, conclude	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	UNDERSTANDING THE WORLD To explore the natural world around them. To describe what they see, hear and feel whilst outside. The Natural World ELG To explore the natural world around them, making observations and drawing pictures of animals and plants;			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 ♣ 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			NATIONAL CURRICULUM: Pupils should be taught to: ♣ recognise that light appears to travel in straight lines ♣ use the idea that light travels in 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.
Taught Knowledge	Key question: What is a light source? To sort objects into light sources and non-light sources (observation/investigation) To learn what a shadow is. Key questions: How does our shadow change as the sun moves? How do we see the moon?			To investigate how shadows alter (investigation/observation/ explanation) (communication) To understand that we need light to see. To understand that light can be created by man-made or natural sources.			To know that light travelling from a light source will always travel in a straight line. To know that light reflecting off an object reflects off it at the same angle it shines onto it. To know that reflecting means light bouncing off something

	<p>To learn about the sun orbiting and reflecting on the moon and the earth turning on its axis.</p> <p>To understand that there are different planets, learning the names of them and their features.</p> <p>To understand what gravity is</p> <p>Key questions:          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?</p>			<p>To understand that objects can reflect light as well as create it.</p> <p>To understand that light reflects from different surfaces</p> <p>To describe how shining a light on a surface enables us to see.</p> <p>To understand that we see different colours/ surfaces differently.</p>			<p>To know that we see when light is reflected off a surface and it enters our eyes</p> <p>To know that objects can be seen because they reflect light into the eye</p> <p>To understand how shadows are formed</p> <p>To describe what happens to the shape of a shadow as distance from a light source changes          (observation/investigation/ explanation)</p>
Working Scientifically	<p>To make observations of sources of light and explain why some things occur          (observation/explanation)</p>	<p>To make observations of shadows and explain why some things occur          (observation/explanation)</p>	<p>SC1: To ask relevant questions and use different types of scientific enquiries to answer them</p> <p>To set up simple practical enquiries, comparative and fair tests (investigation)</p> <p>To make systematic and careful observations and, where appropriate, taking accurate measurements using standard units (observation)</p> <p>To gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>To record findings using bar charts, and tables</p> <p>To report on findings from enquiries, including presentations of results and conclusions</p> <p>To use results to draw simple conclusions, make predictions for</p>				<p>SC1: To take measurements, using a range of scientific equipment, with increasing accuracy and precision          (observation/investigation)</p> <p>To record results of increasing complexity using scientific diagrams and labels, bar and line graphs</p> <p>To use test results to make predictions to set up further comparative and fair tests</p> <p>To report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results (explanation)</p> <p>To identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Being a scientist</p> <p>Pupils in years 5 and 6 should use their</p>



			<p>new values, suggest improvements and raise further questions (explanation) 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</p> <p>To raise questions about the world around them.</p> <p>To make decisions about the most appropriate type of scientific enquiry they might use to answer questions;</p> <p>To recognise when a simple fair test is necessary and help to decide how to set it up</p> <p>To look for naturally occurring patterns and relationships, deciding what data to collect to identify them</p> <p>To learn how to use new equipment appropriately.</p> <p>To collect data from observations and measurements, using notes, simple tables and standard units</p> <p>To make decisions about how to record and analyse this data.</p> <p>To draw simple conclusions and answer questions.</p> <p>To recognise when and how secondary sources might help them to answer questions that</p>				<p>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</p>
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			cannot be answered through practical investigations. To use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences				. 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	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 distance ♣ 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		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 resistance, water resistance and friction, that act between moving surfaces ♣ recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
Taught Knowledge				To know that a force is a push and pull requiring		To understand there are different types of forces	

				<p>contact between 2 objects To know that some forces work without any contact or from a distance</p> <p>To 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 (explanation)(consolidation)</p> <p>To know that a compass is a tiny magnet and that the Earth is a giant magnet</p> <p>To know that magnets have 2 poles, those that attract and those that repel</p> <p>To know that a magnet is any object that generates its own magnetic force, called a magnetic field</p> <p>To know that one end of a 'bar' magnet is called the north pole and the opposite is the south pole</p> <p>To know that magnets attract metals that contain iron and that magnetic materials will be attracted to the magnet (stick)(observation/ investigation)</p>		<p>including friction, gravity, up thrust, thrust, magnetism, air resistance and buoyancy</p> <p>To understand that forces can be balanced and unbalanced.</p> <p>To understand that more than one force can be acting at a time.</p> <p>To understand the difference between weight and mass.</p> <p>To understand gravity is a force pulling objects towards the centre of the Earth. To understand what air resistance is.</p> <p>To understand how to use a newton meter to measure force. (observation)</p> <p>To know that friction is a force between two surfaces that are sliding, or trying to slide, across each other.</p> <p>To investigate how levers work; exploring how the position of fulcrum, load and effort impacts on use (investigation)</p> <p>To investigate how pulleys work and how the number of pulleys used changes the effort required</p> <p>To draw diagrams that explain the forces, loads, weights and efforts for levers and pulleys (explanation)</p>	
Working Scientifically				SC1: To ask relevant questions and use different types of scientific enquiries to answer them		Sc1: To plan different types of scientific enquiries to answer questions, including recognising and	

				<p>To set up simple practical enquiries, comparative and fair tests (observation/investigation)</p> <p>To record findings using simple scientific language and drawings or labelled diagrams,</p> <p>To report on findings from enquiries, including oral and written explanations (explanation)</p> <p>To use results to draw simple conclusions and raise further questions</p> <p>To identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>To use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Being a scientist:</p> <p>To raise questions about the world around them.</p> <p>To make decisions about the most appropriate type of scientific enquiry they might use to answer questions;</p> <p>To look for naturally occurring patterns and relationships in order to draw simple conclusions and answer questions.</p> <p>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>To recognise when and how secondary sources might help to answer</p>		<p>controlling variables where necessary (observation/investigation)</p> <p>To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>To record data and results of increasing complexity using scientific diagrams and labels, bar and line graphs</p> <p>To 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 (explanation) (communication)</p> <p>Being a scientist: To explore ideas and raise different kinds of questions;</p> <p>To select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;</p> <p>To recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</p> <p>To decide what observations to make, what measurements to use and how long to</p>	
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				<p>questions that cannot be answered through practical investigations.</p> <p>To use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences</p>		<p>make them for, and whether to repeat them;</p> <p>To choose the most appropriate equipment to make measurements and explain how to use it accurately.</p> <p>To use results to identify when further tests and observations might be needed;</p> <p>To recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</p> <p>To use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas</p> <p>To discuss 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 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: Pupils should be taught to: ♣ 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</p>	

						<p>Sun, Earth and Moon 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.</p>	
<p>TAUGHT KNOWLEDGE</p>						<p>To understand that it takes a year for the Earth to orbit the sun          To know that the sun is a star at the centre of our solar system          To understand the other planets in the solar system take different lengths of time to orbit the sun          To recognise the position of the planets in the solar system (observation)          To know that a moon is a celestial body that orbits a planet          To recognise that the Earth, Sun and Moon are spherical          To give examples of evidence to prove that the Earth, Sun and Moon are spherical, explaining why people have not always believed that the Earth was spherical (explanation)</p>	
<p>WORKING SCIENTIFICALLY</p>						<p>SC1 To report findings from enquiries, including conclusions, causal relationships and explanations in oral and written forms such as displays and other presentations (observation) (communication)</p>	

						<p>To identify scientific evidence that has been used to support or refute ideas or arguments (explanation)</p> <p>Being a scientist To use science experiences to explore ideas and raise different kinds of questions</p> <p>To use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas To discuss how scientific ideas have developed over time</p>	
Vocabulary	<p>Light, dark, moon, sun, beam, orbit, axis, earth</p> <p>Astronaut, planet, constellation, star, moon, sun, earth, solar system, axis, orbit, atmosphere, galaxy, launch, gravity, rocket, satellite</p>					<p>planet, orbit, sun, moon, Earth, solar system, moon, spherical bodies, rotates, axis, day, night, shadows, time zone</p>	
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
SOUND					<p>NATIONAL CURRICULUM: Pupils should be taught to: ♣ identify how sounds are made, associating some of them with something vibrating ♣ recognise that vibrations from sounds travel through a medium to the ear ♣ find patterns between the pitch of a sound and features of the object that produced it ♣ find patterns between the volume of a sound and the strength of the vibrations that produced it ♣ recognise that</p>		

					sounds get fainter as the distance from the sound source increases		
Taught Knowledge					<p>To understand how sounds are made (observation/investigation)</p> <p>To use the term 'volume' to describe the level of sound.</p> <p>To recognise patterns between the volume of a sound and the strength of the vibrations that produce it (explanation)</p> <p>To know that pitch relates to how low or high a sound is</p>		
Working Scientifically					<p>SC1: To ask relevant questions and use different types of scientific enquiries to answer them</p> <p>To set up simple practical enquiries, comparative and fair tests (observation/investigation)</p> <p>To make systematic and careful observations</p> <p>To record findings using simple scientific language, drawings, labelled diagrams</p> <p>To report on findings from enquiries, including oral and written explanations</p> <p>To use results to draw simple conclusions and raise further questions (explanation)</p> <p>To use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Being a scientist</p>		



					<p>To raise questions about the world around them.</p> <p>To look for naturally occurring patterns and relationships</p> <p>To learn how to use new equipment appropriately.</p> <p>To draw simple conclusions and answer questions.</p> <p>To recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.</p> <p>To use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.</p>		
Vocabulary					<p>sound, travel, vibration, source, pitch, volume, decibels, sound wave, ear</p>		
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ELECTRICITY					<p>NATIONAL CURRICULUM: Pupils should be taught to: ♣ identify common appliances that run on electricity ♣ construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers ♣ 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>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 cells used in the circuit ♣ 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 ♣ use recognised symbols when representing a</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 ♣ recognise some common conductors and insulators, and associate metals with being good conductors.		simple circuit in a diagram.
Taught Knowledge					<p>To know that appliances run on electricity and that electricity is power</p> <p>To know that we use mains electricity or battery power to run appliances and devices</p> <p>To understand which components are required to build a simple circuit and to adapt or change the layout of components (observation/investigation)</p> <p>To know that a circuit must be complete to work</p> <p>To recognise that a switch opens and closes a circuit</p> <p>To understand how a switch turns a lamp on and off</p> <p>To explain what a switch needs to be made from and why (explanation) (communication)</p> <p>To know that metals are good conductors of electricity, most 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</p>		<p>To know that electricity can flow through the components in a complete electric circuit.</p> <p>To know that you can make bulbs brighter by adding more batteries to the circuit but that adding more bulbs to a simple circuit will reduce the electrical energy and make the bulbs dimmer. (investigation/observation)</p> <p>To know that lengthening wires in a simple circuit will reduce the electrical energy, as it has further to travel. The extra distance will make the bulb dimmer.</p> <p>To know that you can make buzzers louder by adding more batteries to the circuit but that adding more buzzers to a simple circuit will reduce the electrical energy and make them quieter</p> <p>To know that electrical circuits can be represented by circuit diagrams.</p> <p>To know that the various electrical components are shown by using standard symbols in</p>

							circuit diagrams. (explanation)
Working Scientifically					<p>SC1 To ask relevant questions and use different types of scientific enquiries to answer them (communication)</p> <p>To set up simple practical enquiries (investigation/observation)</p> <p>To record findings using simple scientific language, drawings, labelled diagrams or presentations of conclusions</p> <p>To identify differences (explanation)</p> <p>To recognize similarities or changes related to simple scientific ideas and processes</p> <p>To use straightforward scientific evidence to answer questions or to support their findings</p> <p>Being a scientist</p> <p>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>To learn how to use new equipment</p> <p>To recognise when and how secondary sources that might help to answer questions that cannot be answered through practical investigations.</p> <p>To use relevant scientific language to discuss ideas and communicate</p>		<p>SC1 To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary (investigation/observation)</p> <p>To record results of increasing complexity using scientific diagrams and labels</p> <p>To report and present findings from enquiries, including conclusions, causal relationships and explanations in oral and written forms (explanation)</p> <p>Being a scientist</p> <p>To use science experiences to explore ideas and raise different kinds of questions;</p> <p>To select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;</p> <p>To use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas</p> <p>To discuss about how scientific ideas have developed over time</p>

					findings in ways that are appropriate for different audiences.		
Vocabulary					electricity, circuit, switch, battery, plug, mains, appliance, device, wire, crocodile clip, bulb, buzzer, connection, power, cell, energy, flow, current, conductor, insulator		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