



Science - Progression of Knowledge

National Curriculum

Understanding of the world educational programme (taken from the EYFS Framework 2020): Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Pupils should be taught in KS1: 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

Pupils should be taught in Lower KS2: 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.

Pupils should be taught in Upper KS2: 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 a 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

Topics Overview

EYFS		Years 1 & 2	Years 3 & 4	Years 5 & 6
This is Us Let's Celebrate Baa Quack Moo Overground/ Underground To the rescue Oh, I do like to be beside the seaside (No cycle required due to single year group)	Cycle A 2022 - 2023 2024 - 2025	Science - I'm a Survivor History - The Lady with the Lamp Geography - Arctic Adventures History - Life Long Ago History - Castles Geography - In the Jungle	Cycle A History – Tomb Raider Geography – Mountains and Rivers Science – Light and Dark Science – Healthy Me Geography – Stars and Stripes History – Divide and Conquer	Cycle A History – Great Greece Geography – Mighty Mayans Science – Space History – Bletchley park Geography- Across the Ocean Geography – Exciting Explorers
	Cycle B 2023 – 2024 2025 - 2026	Science - Marvellous Minibeasts History - The Great Fire of London History - Transport Through Time Science - Growing up Geography - Sink or Swim Geography- Waste not want not	Cycle B History – Rotten Romans Geography – Volcanos History – Heads will roll Geography – It's a Wonderful World History – From Stone Age to Iron Age Geography – My MK	Cycle B History – Titanic Geography – Rainforests History – Vile Victorians History – Shakespeare's Sagas Geography – Where land meets the sea Science – Fitness or Football

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Scientific enquiry	<p>Make observations of animals, plants and materials starting to explain why some things occur</p> <p>Talk about changes</p> <p>Having the freedom to choose various provision resources to conduct experience.</p> <p>Encouraging broader thinking by answering open questions.</p> <p>Begin to ask questions about things they do not understand.</p>	<p>Start to discuss what they have found out</p> <p>Start to ask and suggest answers to simple scientific questions</p> <p>Use first-hand practical experiences to find answers</p> <p>Begin to gather and record data simply using pictures and words</p> <p>Start to observe closely</p> <p>Perform simple tests with support</p>	<p>Discuss what they have found out</p> <p>Ask and raise their own scientific questions</p> <p>Use first-hand practical experiences to find answers</p> <p>Gather and record data using diagrams, words and charts</p> <p>Observe closely</p> <p>Perform simple tests</p>	<p>Use results to draw simple conclusions and make predictions</p> <p>Identify similarities, differences, changes related to scientific processes and ideas</p> <p>Ask relevant scientific questions and suggest how to answer e.g. practical test vs secondary sources</p> <p>Develop different types of scientific enquiry</p> <p>Gather, record and present data in variety of ways e.g. drawings, labelled diagrams, charts</p> <p>Report on findings orally and in writing using scientific language</p> <p>Develop skills of systematic observation</p>	<p>Use results to draw simple conclusions, make predictions, suggest improvements and raise further questions</p> <p>Explain similarities, differences, changes related to scientific processes and ideas</p> <p>Generate and answer scientific questions using evidence</p> <p>Select most appropriate type of scientific enquiry</p> <p>Gather, record, classify and present data in a wide variety of ways e.g. drawings, labelled diagrams, charts</p> <p>Report on findings orally and in writing using scientific language to answer questions</p>	<p>Use test results to make predictions to set up further tests (comparative/fair)</p> <p>Identify scientific evidence that has been used to support/refute arguments</p> <p>Use science experiences to plan different types of enquiry</p> <p>Record data/results of increasing complexity using diagrams, classification keys, tables, bar and line graphs</p> <p>Report and present findings from enquiries, examining causal relationships and reliability of results</p> <p>Independently decide which observations to make</p>	<p>Use test results to make predictions to set up further tests (comparative/fair) and explain reasoning</p> <p>Interpret scientific evidence that has been used to support/refute arguments</p> <p>Plan different types of scientific enquiry in order to answer questions</p> <p>Use science experiences to explore ideas and raise different types of question</p> <p>Decide how to record data/results of increasing complexity using diagrams, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Report and present findings from enquiries, examining causal</p>

				<p>Set up simple practical enquiries</p> <p>Understand comparative and fair tests</p>	<p>Make systematic observations</p> <p>Suggest, set up and carry out simple practical enquiries</p> <p>Understand comparative and fair tests</p>	<p>Recognise and control variables where necessary</p>	<p>relationships and reliability of results</p> <p>Independently decide which observations to make</p> <p>Recognise and control variables where necessary</p> <p>Explain which variables need to be controlled and why</p>
<p>Animals including humans</p>	<p>Discussion and knowledge of how to keep themselves healthy.</p> <p>Initial understanding of different groups of animals and where they live.</p> <p>Introduction to looking at people and animals that live in other countries,</p> <p>Introduction to life cycles.</p> <p>Hands-on experiences with humans and animals.</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the</p>	<p>Understand that animals, including humans, have offspring which grow into adults</p> <p>Describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>Describe the changes as humans develop to old age</p>	<p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p>

		body is associated with each sense					
Materials	<p>Sensory discovery of different materials.</p> <p>Begin to look at things that are the same and different about materials.</p> <p>Introduction to the different vocabulary we might use to describe different materials.</p> <p>Using a variety of materials to create independently.</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>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out and describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>			<p>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</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</p>	

						<p>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>	
Plants	<p>Observing plants and how they grow.</p> <p>Hands of experiences of looking after our garden and Forest school area.</p> <p>Sensory exploration or vegetables.</p> <p>Talking about how plants change through the seasons.</p> <p>Introduction to vocabulary surrounding plants and trees.</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees</p>	<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore and describe 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</p>			

	<p>A basic understanding of parts of a plant and tree.</p> <p>Basic understanding of what a plant and tree needs to survive.</p>			<p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>			
Seasonal changes	<p>Introduction to the four seasons.</p> <p>Begin to understand what things happen in each season.</p>	<p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>					
Earth and Space	<p>Stories about space and the moon.</p>					<p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>Describe the movement of the Moon relative to the Earth</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies</p>	

						Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	
Electricity	<p>Explore how light is used as part of our celebrations.</p> <p>Introduction to different types of light and the vocabulary that surrounds it.</p>				<p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of 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>

					Recognise some common conductors and insulators, and associate metals with being good conductors		
Forces and magnets	Freedom to explore magnets with a variety of materials.			<p>Compare how things move on different surfaces</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>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</p> <p>Describe magnets as having two poles</p>		<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p>	

				Predict whether two magnets will attract or repel each other, depending on which poles are facing			
Rocks	Explore a variety of rock resources and use them to create different effects within provision.			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			
Sound	Listening to the sounds around us. Understanding which volume level is appropriate for inside the classroom. Introduction and the freedom to explore the sounds made by percussion instruments.				Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear		

	Discovery of the sounds made by different animals including humans.				Find patterns between the pitch of a sound and features of the object that produced it		
	Listening to a music tune and trying our best to copy it with our voices.				Find patterns between the volume of a sound and the strength of the vibrations that produced it		
					Recognise that sounds get fainter as the distance from the sound source increases		

Autumn 1

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
Cycle A	<p>Children begin to explore seasonal change during group walks to the local post box and while learning in Forest School.</p> <p>Development Matters:</p> <ul style="list-style-type: none"> • Describes what he/she can see, hear and feel whilst outside • Understands the effect of seasonal change on the natural world around them 	Cycle A	<p>Living things and their habitat – Humans</p> <ul style="list-style-type: none"> • 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 	Cycle A	<p>Animals, including humans – Nutrients</p> <ul style="list-style-type: none"> • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • Identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>LI: To be able to sort foods into food groups and find out about the nutrients that different foods provide</p>	Cycle A	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> • 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

	Children will also learn about taking care of themselves (Exercise, road safety) – linked to PSED and PD in P.E		<p>habitats, including microhabitats</p> <ul style="list-style-type: none"> 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>LI: To be able to identify things that are living, things that are dead and things that have never been alive LI: To be able to understand that living things need to live in suitable habitats LI: To be able to explore plants and animals in an unfamiliar habitat LI: To be able to explore and describe a micro-habitat LI: To be able to explore food chains in a habitat</p>		<p>LI: To be able to explore the nutritional values of different foods by gathering information from food label LI: To be able to sort animal skeletons into groups, discussing patterns and similarities and differences LI: To be able to investigate an idea about how the human skeleton supports movement LI: To be able to explain how bones and muscles work together to create movement</p>		<p>and that adaptation may lead to evolution</p> <p>LI: To be able to explain the scientific concept of inheritance LI: To be able to demonstrate understanding of the scientific meaning of adaptation LI: To be able to identify the key ideas of the theory of evolution (Charles Darwin) LI: To be able to identify evidence for evolution from fossil records LI: To be able to understand how human beings have evolved LI: To be able to explain how adaptation can result in both advantages and disadvantages</p>
Cycle B	<p>Children develop an understanding of how their local environment changes during Autumn. They find examples of the changes while walking around the school and local streets.</p> <p>Seasons Autumn Conkers Pine Cones Leaves falling Orange, red, brown Exercise Healthy Fit Safe</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Living Dead Never Living Examples of habitats: Woodland, urban, coastal, rainforest, arctic, desert, ocean, river and mountain</p> <p>Examples of microhabitats: Short grass, flowers, inside rotting wood, under leaves, in and on soil.</p> <p>Life processes – These are the things that all living things do. They move, breathe, sense, grow, make babies, get rid of waste and get their energy from food.</p> <p>Living – Things that are living have all the life processes.</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Living things need food to grow and to be strong and healthy. Plants can make their own food, but animals cannot. To stay healthy, humans need to exercise, eat a healthy diet and be hygienic. Animals, including humans, need food, water and air to stay alive.</p> <p>Nutrients: Carbohydrates provide energy. Protein helps growth and repair. Fibre helps you to digest the food that you have eaten. Fats provide energy. Vitamins keep you healthy. Minerals keep you healthy. Water moves nutrients around your body and helps to get rid of waste.</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Evolution is the gradual process by which different kinds of living organism have developed from earlier forms over millions of years. Scientists have proof that living things are continuously evolving.</p> <p>Fossils are the preserved remains, of ancient animals and plants, Fossils let scientists to know how plants and animals used to look millions of years ago. This is proof living things have evolved over time.</p> <p>Offspring – The young animal or plant that is produced by the reproduction of that species.</p>

		<p>Dead – Things that are dead were once living. They did have all the life processes but don't now.</p> <p>Never living – Things made out of metal, plastic or rock were never living. They never had the life process.</p> <p>Food chain – A food chain shows how each animal get its food, Food chains are one of the ways that living things depend on each other to stay alive.</p> <p>Food sources – This is the place a living thing's food comes from.</p> <p>Habitat – A habitat is a natural place something lives. A habitat provides living things with everything they need to survive such as food, shelter and water.</p> <p>Microhabitat – A microhabitat is a very small habitat in places like under a rock, under leaves or on a branch. Minibeasts live in microhabitats. The microhabitats have everything they need to survive.</p> <p>Depend – Many living things in a habitat depend on each other. This mean they need each other for different things.</p> <p>Survive – This means to stay alive.</p>	<p>Skeletons do three important jobs:</p> <ul style="list-style-type: none"> • protect organs inside the body; • allow movement; • support the body and stop it from falling on the floor. <p>Skeletal muscles work in pairs to move the bones they are attached to by taking turns to contract (get shorter) and relax (get longer).</p> <p>Healthy - In a good physical and mental condition</p> <p>Nutrients - Substances that living things need to stay alive and healthy</p> <p>Energy - Strength to be able to move and grow</p> <p>Saturated fats - Types of fats, considered to be less healthy, that should only be eaten in small amounts</p> <p>Unsaturated fats - Fats that give you energy, vitamins and minerals</p> <p>Vertebrate - Animals with backbones</p> <p>Invertebrate - Animals without backbones</p> <p>Muscles - Soft tissues in the body that contract and relax to cause movement</p> <p>Tendons - Cords that join muscles to bones</p> <p>Joints - Areas where two or more bones are fitted together</p>	<p>Inheritance – This is when characteristics are passed on to offspring from their parents.</p> <p>Variations – The differences between individuals withing a species.</p> <p>Characteristics – The distinguishing features of qualities that are specific to a species.</p> <p>Adaptation – An adaptation is a trait (or characteristic) changing to increase a living thing's chances of surviving and reproducing.</p> <p>Habitat – Refers to a specific area or place in which particular animals and plants can live.</p> <p>Environment - An environment contain many habitats and included areas where there are both living and non-living things.</p> <p>Evolution – Adaptation over a very long time.</p> <p>Natural selection – The process where organisms that are better adapted to their environment tend to survive and produce more offspring.</p> <p>Fossils – The remains or imprint of a prehistoric plant or animals, embedded in rock and preserved.</p> <p>Adaptive traits – Genetic features that help a living thing to survive.</p> <p>Inherited traits – These traits you get from your parents. Within a family, you will often see similar traits, e.g. curly hair.</p>
	<p>Cycle B</p> <p>Animals, including Humans – Comparing Animals</p> <ul style="list-style-type: none"> • 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 	<p>Cycle B</p> <p>Forces</p> <ul style="list-style-type: none"> • Compare how things move on different surfaces • Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance 	<p>Cycle B</p> <p>Electricity</p> <ul style="list-style-type: none"> • 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 	

		<p>carnivores, herbivores and omnivores</p> <ul style="list-style-type: none"> Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) <p>Ll: To be able to identify and name some common animals including minibeasts Ll: To be able to label body parts of an animals (insects) Ll: To be able to describe and compare the structure of a variety of common animals including insects Ll: To be able to identify, name and sort animals that are herbivores, carnivores and omnivores. Ll: To be able to sort animals according to a criteria.</p>		<p>Ll: To be able to understand and explain what forces are Ll: To be able to present scientific ideas and thinking about forces Ll: To be able to classify each action as either a push, a pull or both Ll: To be able to plan and carry out a fair test on forces. Ll: To be able to develop prediction and conclusion drawing thinking about 'Why'</p>		<p>brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <ul style="list-style-type: none"> Use recognised symbols when representing a simple circuit in a diagram <p>Ll: To know how to construct simple circuits, identifying their basic parts Ll: To be able to recognise and use conventional symbols Ll: To know how to compare the function of circuit components Ll: To know how to plan a scientific enquiry Ll: To be able to carry out a scientific enquiry Ll: To be able to review our understanding of circuits</p>
		<p>Key Knowledge/Key Vocabulary <u>Mammals</u> Human, mouse, dog, cow <u>Birds</u> Penguin, chicken, flamingo, robin <u>Fish</u> Goldfish, tuna, shark, eel <u>Reptiles</u> Snake, tortoise, lizard, alligator <u>Amphibians</u> Frog, toad, newt, salamander <u>Insects</u> Butterfly, spider, snail, beetle, dragonfly, ladybird <u>Parts of the insect body</u> Abdomen, thorax, antennae Amphibians – Amphibians live in the water as babies and on land as they grow older. They have smooth, slimy skin.</p>		<p>Key Knowledge/Key Vocabulary Different surface create different amounts of friction. The amount of friction created by an object moving over a surface depends on the roughness of the surface and the object, and the force between them.</p> <p>Forces will change the motion of an object. They will either make it start to move, speed up, slow it down or even make it stop.</p> <p>Forces – Pushes or pulls Friction – A force that acts between two surfaces or objects that are moving, trying to move, across each other. Surface – The top layer of something.</p>		<p>Key Knowledge/Key Vocabulary What will make a bulb brighter or a buzzer louder?</p> <ul style="list-style-type: none"> More batteries or a higher voltage create more power to flow through the circuit. Shortening the wires means the electrons have less resistance to flow through. <p>Series Circuit A circuit that has only one route for the current to take. If more bulbs or buzzers are added, the power has to be shared and so they will be dimmer or quieter. If just one part of this series circuit breaks, the circuit is broken and the flow of current stops. What will make a bulb dimmer or a buzzer quieter?</p>

			<p>Birds – All birds have a beak, two legs, feathers and wings.</p> <p>Fish – Fish live and breathe under water. They have scaly skin, fins to help them swim and they breathe through gills.</p> <p>Mammals – Mammals are animals that breathe air, grow hair or fur and feed on their mother’s milk as a baby.</p> <p>Reptiles – All reptiles breathe air. They have scales on their skin.</p> <p>Carnivore – Animals that mostly eat other animals (meat) are carnivores.</p> <p>Herbivore – Animals that only eat plants are herbivores.</p> <p>Omnivores – Animals that eat both plants and other animals are omnivores.</p>			<ul style="list-style-type: none"> • Fewer batteries or a lower voltage give less power to the circuit. • More buzzers or bulbs mean the power is shared by more components. • Lengthening the wires means the electrons have to travel through more resistance. <p>Circuit – A path that an electrical current can flow around.</p> <p>Symbol – A visual picture that stands for something else.</p> <p>Cell/battery - A device that stores chemical energy until it is needed. A cell is a single unit. A battery is a collection of cells.</p> <p>Current – The flow of electrons, measured in amps.</p> <p>Amps – How electric current is measured</p> <p>Voltage – The force that makes the electric current move through the wires. The greater the voltage, the more current will flow.</p> <p>Resistance – The difficulty that the electric current has when flowing around a circuit.</p> <p>Electrons – Very small particles that travel around an electrical circuit.</p>
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Autumn 2

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
<p>Cycle A</p> <p>Linked to learning about festivals of light – Bonfire Night, Diwali, Hanukkah</p> <p>Exploration and enquiry opportunities in preparation for KS1: Exploring light and shadows Exploring sounds – listening and identifying the source/ making sounds Children continue to observe changes in the seasons – during continuous provision and Forest School</p> <p>Development Matters:</p> <ul style="list-style-type: none"> • Describes what he/she can see, hear and feel whilst outside • Understands the effect of seasonal change on the natural world around them 	<p>Cycle A</p> <p>Absorbency (Non-statutory)</p> <ul style="list-style-type: none"> • Explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials such as: absorbent/not absorbent • Explore and experiment with a wide variety of materials. <p>LI: To know what absorbent means LI: To be able to explore how absorbent different materials are LI: To be able to plan an investigation LI: To be able to carry out an investigation LI: To be able to write a conclusion</p>	<p>Cycle A</p> <p>States of Matter</p> <ul style="list-style-type: none"> • 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 Celsius (°C) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature <p>LI: To be able to sort and describe materials LI: To be able to investigate gases and explain their properties LI: To be able to investigate materials as they change state LI: To be able to explore how water changes state LI: To be able to investigate how water evaporates LI: To be able to identify and describe the different stages of the water cycle</p>	<p>Cycle A</p> <p>Properties of materials</p> <ul style="list-style-type: none"> • 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 liquid to form a solution, and describe how to recover a substance from a solution • 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 				

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							<p>with burning and the action of acid on bicarbonate of soda.</p> <p>LI: To be able to compare materials according to their properties</p> <p>LI: To be able to investigate thermal conductors and insulators</p> <p>LI: To be able to investigate which electrical conductors make a bulb shine brightest</p> <p>LI: To be able to investigate materials which will dissolve</p> <p>LI: To be able to use different processes to separate mixtures of materials</p> <p>LI: To be able to identify and explain irreversible chemical changes</p>
<p>Cycle B</p> <p>Children begin exploring light and shadows through play opportunities using a dark tent, UV light and torches etc.</p> <p>Light Shadow Torch Lamp Electric Battery</p> <p>Children continue to learn about seasonal change – exploring the impact of winter on the local environment</p> <p>Seasons Winter Frost Freeze Melt</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Materials: Plastic, wood, metal, water, glass, plastic toys, wooden furniture, metal tools, drinking water, glass window, brick, fabric, paper, stone, paper books, brick houses, fabric clothing and stepping stones.</p> <p>Object - A thing that can be used. For example a door, chair, car, table are all objects.</p> <p>Material - Materials are what an object is made from.</p> <p>Absorbent - If something is absorbent, it soaks liquid up.</p> <p>Not absorbent - If something is not absorbent, it does not soak up liquid.</p>	<p>Key Knowledge/Key Vocabulary</p> <p>There are three states of matter.</p> <ul style="list-style-type: none"> • Particles in a solid are close together and cannot move. They can only vibrate. • Particles in a liquid are close together but can move around each other easily. • Particles in a gas are spread out and can move around very quickly in all directions. <p>When water and other liquids reach a certain temperature, they change state into a solid or a gas. The temperatures that these changes happen at are called the boiling, melting or freezing point.</p> <p>If a solid is heated to its melting point, it melts and changes to a liquid. This is because the particles start to move faster and faster until they are able to move over and around each other.</p>	<p>Key Knowledge/Key Vocabulary</p> <p>Different materials are used for particular jobs based on their properties: electrical conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal conductivity, transparency.</p> <p>Change of state:</p> <ul style="list-style-type: none"> • The solid melts. • The liquid freezes. • The gas condenses. • The liquid evaporates. <p>Reversible changes, such as mixing and dissolving solids and liquids together, can be reversed by:</p> <p>Sieving - Smaller materials are able to fall through the holes in the sieve, separating them from larger particles.</p> <p>Filtering - The solid particles will get caught in the filter paper but the liquid will be able to get through.</p> <p>Evaporating - The liquid changes into a gas, leaving the solid particles behind.</p>			

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				<p>When freezing occurs, the particles in the liquid begin to slow down as they get colder and colder. They can then only move gently on the spot, giving them a solid structure.</p> <ol style="list-style-type: none"> 1. Water from lakes, puddles, rivers and seas is evaporated by the sun's heat, turning it into water vapour. 2. This water vapour rises, then cools down to form water droplets in clouds (condensation). 3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (precipitation). <p>States of matter - Materials can be one of three states: solids, liquids or gases. Some materials can change from one state to another and back again.</p> <p>Solids - These are materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. Solids take up the same amount of space no matter what has happened to them.</p> <p>Liquids - Liquids take the shape of their container. They can change shape but do not change the amount of space they take up. They can flow or be poured.</p> <p>Gases - Gases can spread out to completely fill the container or room they are in. They do not have any fixed shape but they do have a mass.</p> <p>Water vapour - This is water that takes the form of a gas. When water is boiled, it evaporates into a water vapour.</p>	<p>Dissolving A solution is made when solid particles are mixed with liquid particles. Materials that will dissolve are known as soluble. Materials that won't dissolve are known as insoluble. A suspension is when the particles don't dissolve.</p> <p>Materials - The substance that something is made out of, e.g. wood, plastic, metal.</p> <p>Solids - One of the three states of matter. Solid particles are very close together, meaning solids, such as wood and glass, hold their shape.</p> <p>Liquids - This state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other. Examples of liquids include water and milk.</p> <p>Gases - One of the three states of matter. Gas particles are further apart than solid or liquid particles and they are free to move around. A gas fills its container, taking both the shape and the volume of the container. Examples of gases are oxygen and helium.</p> <p>Melting - The process of heating a solid until it changes into a liquid.</p> <p>Freezing - When a liquid cools and turns into a solid. Evaporating - When a liquid turns into a gas or vapour. Condensing - When a gas, such as water vapour, cools and turns into a liquid.</p> <p>Conductor - A conductor is a material that heat or electricity can easily travel through. Most metals are both thermal conductors (they conduct heat) and electrical conductors (they conduct electricity).</p>		

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					<p>Melt - This is when a solid changes to a liquid.</p> <p>Freeze - Liquid turns to a solid during the freezing process.</p> <p>Evaporate - Turn a liquid into a gas.</p> <p>Condense - Turn a gas into a liquid.</p> <p>Precipitation - Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow.</p>		<p>Insulator - An insulator is a material that does not let heat or electricity travel through them. Wood and plastic are both thermal and electrical insulators.</p> <p>Transparency - A transparent object lets light through so the object can be looked through, for example glass or some plastics.</p>
		<p>Cycle B</p> <p>Everyday Materials</p> <ul style="list-style-type: none"> • 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 materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties <p>LI: To be able to identify and name different materials.</p> <p>LI: To be able to tell the difference between an object and the materials it is made from.</p> <p>LI: To be able to describe the properties of everyday materials.</p> <p>LI: To be able to identify which materials have certain properties.</p> <p>LI: To be able to test different materials and use what I have learnt to make a decision.</p> <p>LI: To be able to sort objects by their properties.</p>		<p>Cycle B</p> <p>Rocks</p> <ul style="list-style-type: none"> • 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 <p>LI: To be able to compare different types of rocks.</p> <p>LI: To be able to group rocks based on their properties</p> <p>LI: To be able to explain how fossils are formed</p> <p>LI: To be able to explain Mary Anning's contribution to palaeontology</p> <p>LI: To be able to explain how soil is formed</p> <p>LI: To be able to present my findings using scientific vocabulary.</p>		<p>Cycle B</p> <p>Living things and their habitats – Rainforest</p> <ul style="list-style-type: none"> • 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 <p>LI: To be able to describe how some plants reproduce</p> <p>LI: To be able to describe the lifecycles of different mammals</p> <p>LI: To be able to explain what Jane Goodall discovered about chimpanzees</p> <p>LI: To be able to compare the life cycles of amphibians and insects</p> <p>LI: To be able to compare life cycles of plants, mammals, amphibians, insects and birds</p>	

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	<p>Key Knowledge/Key Vocabulary</p> <p>Materials:</p> <ul style="list-style-type: none"> ● plastic ● wood ● metal ● water ● glass ● plastic toys ● wooden furniture ● metal tools ● drinking water ● glass window ● brick ● fabric ● paper ● stone ● paper books ● brick houses ● fabric clothing ● stepping stones <p>Object – A thing that can be used. For example a door, chair, car, table are all objects</p> <p>Material – Materials are what an object is made from.</p> <p>Hard – Not easily broken or bent.</p> <p>Soft – If something is soft, it is easy to cut, fold or change the shape of.</p> <p>Stretchy – Can be pulled to make it longer or wider without breaking.</p> <p>Shiny – Reflects light easily.</p> <p>Dull – Doesn't reflect light. Doesn't look bright or shiny.</p> <p>Rough - If something is rough, it feels and looks uneven or bumpy.</p> <p>Smooth – Smooth objects have no lumps or bumps.</p> <p>Bendy – Bendy things can be bent easily into a curved or folded shape</p>	<p>Key Knowledge/Key Vocabulary</p> <p>There are three types of naturally occurring rock:</p> <p>Igneous Obsidian, granite, basalt</p> <p>Sedimentary Chalk, sandstone, limestone</p> <p>Metamorphic Marble, quartzite, slate</p> <p>Human-made rocks Brick, concrete, coade stone</p> <p>Some words you might use to discuss the properties of a rock: hard, soft, permeable, impermeable, durable (meaning resistant to weathering), high density, low density. Density measures how 'bulky' the rock is (how tightly packed the molecules are).</p> <p>Soil is the uppermost layer of the Earth. It is a mixture of different things:</p> <ul style="list-style-type: none"> ● minerals (the minerals in soil come from finely broken-down rock); ● air; ● water; ● organic matter (including living and dead plants and animals). <p>Igneous rock – Rock that has been formed from magma or lava.</p> <p>Sedimentary rock – Rock that has been formed by layers of sediment being pressed down hard and sticking together. You can see the layers of sediment in the rock.</p> <p>Metamorphic rock – Rock that started out as igneous or sedimentary rock but changed due to being exposed to extreme heat or pressure.</p>	<p>Key Knowledge/Key Vocabulary</p> <p>Humans develop inside their mothers and are dependent on their parents for many years until they are old enough to look after themselves.</p> <p>Amphibians such as frogs are laid in eggs the, once hatched, go through many changes until they become an adult.</p> <p>Some animals, such as butterflies, go through metamorphosis to become an adult.</p> <p>Birds are hatched from eggs and are looked after by their parents until they are able to live independently.</p> <p>Some living things, such as plants, contain both the male and female sex cells. In other, such as humans they contain either the male or female sex cell.</p> <p>Asexual reproduction – One parent is needed to create an offspring, which is an exact copy of the parent</p> <p>Fertilise – The action of fusing the male and female sex cells in order to develop.</p> <p>Gestation – The length of a pregnancy.</p> <p>Life cycle – the journey of changes that take place throughout the life of a living thing including birth, growing up and reproduction.</p> <p>Metamorphosis – An abrupt and obvious change in the structure of an animal's body and their behaviour.</p> <p>Pollination – the transfer of pollen to a stigma to allow fertilisation.</p>

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			<p>Waterproof – If something is waterproof, it keeps water out. It keeps things dry.</p> <p>Absorbent – If something is absorbent, it soaks liquid up.</p> <p>Transparent – Transparent objects can be seen through</p> <p>Opaque - Opaque objects can't be seen through.</p>		<p>Magma – Molten rock that remains underground.</p> <p>Lava – Molten rock that comes out of the ground is called lava.</p> <p>Sediment – Natural solid material that is moved and dropped off in a new place by water or wind, e.g. sand.</p> <p>Permeable – Allows liquids to pass through it</p> <p>Impermeable – Does not allow liquids to pass through it.</p> <p>Fossilisation – The process by which fossils are made</p> <p>Palaeontology – The study of fossils.</p> <p>Erosion - When water, wind or ice wears away land.</p>		<p>Reproduction – The process of new living things being made.</p> <p>Sexual reproduction – Two parents are needed to make offspring which are similar but not identical to either parent.</p>

Spring 1

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<p>Cycle A</p> <p>Children will observe life cycles first hand through a chick hatching experience and wider reading. They will experiment with changing states of matter through the process of making bread.</p> <p>Development Matters:</p> <p>Explore the natural world around them.</p> <p>Leading into ELG (The Natural World):</p> <ul style="list-style-type: none"> Understands some important process and changes in the natural world around him/her, including the seasons and changing states of matter Making observations and drawing pictures of animals and plants Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. 	<p>Cycle A</p> <p>Living things and their habitat – Arctic</p> <ul style="list-style-type: none"> 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 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>LI: To be able to answer questions about things that are living, dead or have never been alive. LI: To be able to map a habitat (Arctic) and identify what is in it.</p>	<p>Cycle A</p> <p>Light</p> <ul style="list-style-type: none"> 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 <p>LI: To be able to recognise that light is needed to see things and that dark is the absence of light. LI: To be able to investigate which surface reflect light. LI: To be able to use a mirror to reflect light and explain how mirrors work. LI: To know that light from the sun can be dangerous and there are ways to protect our eyes.</p>	<p>Cycle A</p> <p>Earth and Space</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 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>LI: To be able to explain why we know the Sun, Earth and Moon are spherical. LI: To be able to name, order and describe features of the planets in our solar system. LI: To be able to explain how planets move in our solar system. LI: To be able to explain day and night and the apparent movement of the sun across the sky. LI: To be able to investigate night and day in different parts of the Earth.</p>				

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			<p>LI: To be able to identify Arctic animals in their habitat.</p> <p>LI: To be able to identify how an Arctic animal is suited to its habitat and how they depend on each other.</p> <p>LI: To be able to describe how arctic animals get their food.</p>		<p>LI: To be able to investigate which materials block light to form shadows.</p> <p>LI: To be able to find patterns when investigating how shadows can change size.</p>		<p>LI: To be able to explain the movement of the Moon.</p>
Cycle B	<p>Children carry out in person observations of animals (chicks) and the process they go through in their life cycle.</p> <p>They read non-fiction texts with adults about the life cycles of other animals to compare the process.</p> <p>Life cycle Egg Chick Hatching Egg tooth Feathers</p> <p>Children compare farm environments for different animals and how their bodies are adapted to them</p> <p>Pig Sheep Cow Hooves Beak Udders Webbed feet</p> <p>Children help to make bread – observing the changing states of the ingredients during the different stages of preparation and cooking.</p> <p>Flour</p>	<p>Key Knowledge/Key Vocabulary</p> <p>Living Dead Never Living Examples of habitats:</p> <p>Woodland, urban, coastal, rainforest, arctic, desert, ocean, river and mountain</p> <p>Examples of microhabitats:</p> <p>Short grass, flowers, inside rotting wood, under leaves, in and on soil.</p> <p>Life processes – These are the things that all living things do. They move, breathe, sense, grow, make babies, get rid of waste and get their energy from food.</p> <p>Living – Things that are living have all the life processes.</p> <p>Dead – Things that are dead were once living. They did have all the life processes but don't now.</p> <p>Never living – Things made out of metal, plastic or rock were never living. They never had the life process.</p> <p>Food chain – A food chain shows how each animal gets its food, Food chains are one of the ways that living things depend on each other to stay alive.</p>	<p>Key Knowledge/Key Vocabulary</p> <p>We need light to be able to see things. Light travels in a straight line, when light hits an object, it is reflected (bounces off). If the reflected light hits our eyes, we can see objects. Some surfaces and materials reflect light well, other materials do not. Reflective surfaces and materials can be useful. hi-vis jacket and cat's eyes.</p> <p>The surfaces that reflect light best are smooth, shiny and flat.</p> <p>Mirrors reflect light very well, so they create a clear image. An image in a mirror appears to be reversed. For example, if you look in a mirror and raise your right hand, the mirror image appears to raise its left hand.</p> <p>The pupils control the amount of light entering the eyes, if too much light enters, then it can damage the retina, to help protect the eyes, you can wear a hat with a wide brim and sunglasses with a UV rating.</p> <p>A shadow is caused when light is blocked by an opaque object. A shadow</p>	<p>Key Knowledge/Key Vocabulary</p> <p>Mercury, Venus, Earth and Mars are rocky planets. They are mostly made up of metal and rock. Jupiter, Saturn, Uranus and Neptune are mostly made up of gases (helium and hydrogen) although they have cores made up of rock and metal.</p> <p>The Moon orbits Earth in an oval-shaped path while spinning on its axis. At various times in a month, the Moon appears to be different shapes. This is because as the Moon rotates round Earth, the Sun lights up different parts of it.</p> <p>Earth rotates (spins) on its axis. It does a full rotation once in every 24 hours. At the same time that Earth is rotating, it is also orbiting (revolving) around the Sun. It takes a little more than 365 days to orbit the Sun. Daytime occurs when the side of the Earth is facing towards the Sun. Night occurs when the side of the Earth is facing away from the Sun.</p> <p>Sun – A huge star that Earth and the other planets in our solar system orbit around.</p>			

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Yeast Salt Dry Rising Air Bubbles Expand Stretchy Sticky Bake		<p>Food sources – This is the place a living thing’s food comes from.</p> <p>Habitat – A habitat is a natural place something lives. A habitat provides living things with everything they need to survive such as food, shelter and water.</p> <p>Microhabitat – A microhabitat is a very small habitat in places like under a rock, under leaves or on a branch. Minibeasts live in microhabitats. The microhabitats have everything they need to survive.</p> <p>Depend – Many living things in a habitat depend on each other. This mean they need each other for different things.</p> <p>Survive – This means to stay alive.</p>	<p>is larger when an object is closer to the light source. This is because it block more of the light.</p> <p>Light – A form of energy that travels in a wave from a source.</p> <p>Light source – An object that makes its own light.</p> <p>Dark – Dark is the absence of light.</p> <p>Reflection – The process where the light hits the surface of an object and bounces back into our eyes.</p> <p>Reflect – To bounce off.</p> <p>Reflective – A word to describe something which reflects light well.</p> <p>Ray – Waves of light are called light rays. They can also be called beams.</p>	<p>Star – A giant ball of gas held together by its own gravity.</p> <p>Moon- A natural satellite which orbits Earth or other planets.</p> <p>Planet – A large object, round or nearly round, that orbits a star.</p> <p>Sphere – A round 3D shape in the shape of a ball.</p> <p>Satellite – Any object or body in space that orbits something else, for example: the Moon is a satellite of Earth.</p> <p>Orbit – To move in a regular, repeating curved path around another object.</p> <p>Rotate – To spin. E.g. Earth rotates on its own axis.</p> <p>Axis – An imaginary live that a bidy rotates around, E.g. Earth’s axis runs from North Pole to the South Pole.</p> <p>Geocentric model – A belief people used to have that other planets and the Sun orbited around Earth.</p> <p>Heliocentric model – The structure of the Solar System where the planets orbit around the Sun.</p> <p>Astronomer – Someone who studies or is an expert in astronomy (Space Science).</p>			
	Cycle B	<p>Animals, including Humans – Human body</p> <ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	Cycle B	<p>Electricity</p> <ul style="list-style-type: none"> 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 	Cycle B	<p>Light</p> <ul style="list-style-type: none"> 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 	

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		<p>LI: To be able to identify and name different parts of the body</p> <p>LI: To be able to explain the functions of different parts of the body</p> <p>LI: To be able to say which part of the body is associated with each sense</p> <p>LI: To know about eating the right amounts of different types of food, and hygiene</p> <p>LI: To be able to describe the importance for humans to exercise.</p>		<ul style="list-style-type: none"> 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 <p>LI: To be able to classify and present data, identifying common appliances that run on electricity</p> <p>LI: To be able to identify circuit components and build working circuits</p> <p>LI: To be able to investigate whether circuits are complete or incomplete</p> <p>LI: To be able to investigate which materials are electrical conductors or insulators</p> <p>LI: To be able to explain how a switch works in a circuit, build switches and report my findings</p>		<ul style="list-style-type: none"> use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them <p>LI: To know how lighting changed during the Victorian times</p> <p>LI: To know that light travels in straight lines</p> <p>LI: To know and understand how mirrors reflect light, and how they can help us see objects</p> <p>LI: To be able to investigate how refraction changes the direction in which light travels</p> <p>LI: To be able to investigate how light enables us to see colours</p> <p>LI: To know and explain why shadows have the same shape as the object that casts them (Isaac Newton)</p>	
		<p>Key Knowledge/Key Vocabulary</p> <p>Sight – Your eyes let you see all the things around you.</p> <p>Hearing – Your ears let you listen to all the things around you. Your brain is able to tell what different sounds are.</p> <p>Touch – Your skin gives you the sense of touch. You can tell if something is warm, cold, smooth or rough without even looking at it!</p> <p>Taste – Your sense of taste comes from your tongue. You can tell if something tastes bitter or sweet. You might have some tastes you like and some you don't.</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Examples of Electrical Conductors: Water, metal.</p> <p>Examples of Electrical Insulator: Wood, plastic, paper, rubber, glass, fabric.</p> <p>Many everyday appliances rely on electricity for them to work. Some appliances use mains electricity (are plugged into a socket) and others have a battery to make them work.</p> <p>Examples of mains-powered appliances include toasters and televisions. Battery-</p>		<p>Key Knowledge/Key Vocabulary</p> <p>We need light to be able to see things. Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light. Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means light can travel through a vacuum - a completely airless space.</p> <p>A shadow is always the same shape as the object that casts it. This is because when an opaque object is in the path of light travelling from a light source, it will</p>	

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
			<p>Smell - You smell using your nose. Your nose can tell if things smell nice or not nice.</p>		<p>powered appliances can include mobile phones and torches.</p> <p>Electricity – The flow of an electric current through a material, e.g. from a power source through wires to an appliance.</p> <p>Appliances – A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.</p> <p>Battery – A device that stores electrical energy as a chemical. Two or more cells joined together form a battery.</p> <p>Circuit – A pathway that electricity can flow around. It is based around wires and a power supply. Examples of components (parts) you can add in to a circuit are bulbs, switches, buzzers and motors.</p> <p>Mains electricity - Electricity supplied through wires to a building.</p> <p>Electrical Conductor - A conductor of electricity is a material that will allow electricity to flow through it.</p> <p>Electrical insulator - Materials that are Electrical insulators do not allow electricity to flow through them.</p>		<p>block the light rays that hit it, while the rest of the light can continue travelling. Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the spectrum. All the colours together merge and make visible light.</p> <p>Light - A form of energy that travels in a wave from a source. Light source - An object that makes its own light.</p> <p>Reflection - Reflection is when light bounces off a surface, changing the direction of a ray of light.</p> <p>Incident ray - A ray of light that hits a surface.</p> <p>Reflected ray - A ray of light that has bounced back after hitting a surface.</p> <p>The law of reflection - The law states that the angle of the incident ray is equal to the angle of reflected ray.</p> <p>Refraction - This is when light bends as it passes from one medium to another. E.g. Light bends when it moves from air into water.</p> <p>Visible spectrum - Light that is visible to the human eye. It is made up of a colour spectrum.</p> <p>Prism - A prism is a solid 3D shape with flat sides. The two ends are an equal shape and size. A transparent prism separates out visible light into all the colours of the spectrum.</p> <p>Shadow - An area of darkness where light has been blocked.</p> <p>Transparent - Describes objects that let light travel through them easily, meaning you can see through the object.</p>

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
							<p>Translucent - Describes objects that things let some light through, but scatters the light so we can't see through them properly.</p> <p>Opaque - Describes objects that do not let any light pass through them.</p>

Spring 2

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
<p>Cycle A</p> <p>Children will observe and grow a variety of plants. They will learn about plants which grow underground and over ground as well as the process of decay, including that of dinosaurs becoming fossils.</p> <p>Children continue to observe changes in the seasons – during continuous provision and Forest School</p> <p>Development Matters:</p> <ul style="list-style-type: none"> Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. Recognise some environments that are different to the one in which they live. 	<p>Cycle A</p> <p>Plants</p> <ul style="list-style-type: none"> 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>LI: To be able to describe and compare plants, seeds and bulbs LI: To be able to name and compare the parts of a plant LI: To be able to identify and name some common garden and wild plants LI: To be able to name, sort and compare some common fruit and vegetable plants LI: To be able to name and compare some common plants and trees</p>	<p>Cycle A</p> <p>Animals, including Humans – Digestion</p> <ul style="list-style-type: none"> 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>LI: To be able to identify and name the parts of the human digestive system LI: To be able to explain the functions in the digestive system LI: To be able to understand the structure of a tooth LI: To be able to plan and carry out an experiment LI: To be able to understand how amylase works</p>	<p>Cycle A</p> <p>Forces</p> <ul style="list-style-type: none"> 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. <p>LI: To be able to understand that unsupported objects fall towards the Earth because of the force of gravity acting between Earth and the falling object LI: To be able to identify the effects of friction acting between moving surfaces LI: To be able to identify and explain the effects of air resistance LI: To be able to identify and explain the effects of water resistance</p>				

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
							<p>LI: To be able to recognise that levers and pulleys allow a smaller force to have a greater effect</p> <p>LI: To be able to recognise that gears allow a smaller force to have a greater effect</p>
<p>Cycle B</p>	<p>Children will make observations of a variety of plants. They will help to grow different plants and observe their life cycle – some quicker and some over a longer time period.</p> <p>They will watch the process of decay for cut flowers and vegetables and observe the changes which take place over time.</p> <p>Spring Shoots Bulbs Plants Stem Leaves Roots Decay Rot Fossil</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Life cycle of a plant:</p> <ol style="list-style-type: none"> 1. Seed or bean 2. Germination 3. Roots 4. Leaves 5. Flowers 6. Fruit 7. Seed dispersal 8. Dies <p>Sun Bulb Water Seeds</p> <p>Germination - When the conditions are right, the seed soaks up water and swells, and the tiny new plant bursts out of its shell. This is called germination.</p> <p>Shoot - A shoot grows upwards from the seed or plant to find sunlight.</p> <p>Seed dispersal - Seed dispersal is when the seeds move away from the parent plant. They can drop to the ground in the plant's fruit or be moved by the wind or animals.</p> <p>What do plants need to grow well?</p> <p>Sunlight - All plants need light from the sun to grow well. Some plants need lots</p>		<p>Key Knowledge/Key Vocabulary</p> <p>To help prevent tooth decay:</p> <ul style="list-style-type: none"> • limit sugary food and drink; • brush teeth at least twice daily using a fluoride toothpaste; • spit toothpaste out (rather than rinsing) after brushing your teeth because rinsing can stop the fluoride in the toothpaste from working as well; • visit your dentist regularly <p>The teeth of an animal are designed to eat different foods depending on the diet of the animal.</p> <p>Human Teeth and Their Functions</p> <p>Incisor: bites and cut</p> <p>Canine: tears and rips</p> <p>Molar: grinds</p> <p>Premolar: holds and crushes</p> <p>Some people have wisdom teeth but they have no function now</p> <p>Digest - Break down food so it can be used by the body.</p> <p>Oesophagus - A muscular tube which moves food from the mouth to the stomach. Stomach - An organ in the</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Forces can make an object...</p> <ul style="list-style-type: none"> • start to move • change direction • change its shape • stop moving • move faster • move more slowly <p>The Moon has a smaller mass than Earth so the gravitational pull on the Moon is smaller than it is on Earth.</p> <p>Jupiter has a greater mass than Earth so the gravitational pull on Jupiter is stronger than on Earth.</p> <p>Mass is how much matter is inside an object. It is measured in kilograms (kg).</p> <p>Weight is how strongly gravity is pulling an object down. It is measured in newtons (N).</p> <p>Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, air resistance is helpful as it stops the skydiver hitting the ground at high speed. Friction on a bike chain can</p>

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
			<p>of sunlight. Some plants only need a little sunlight.</p> <p>Water - All plants need water to grow. Without water, seeds and bulbs will not germinate.</p> <p>Temperature - Temperature is how warm or cold something or somewhere is. Some plants like cooler temperatures and some like warmer temperatures.</p> <p>Nutrition - Food or nourishment. Plants make their own food in their leaves using sunlight.</p>		<p>digestive system where food is broken down with stomach acid and by being churned around.</p> <p>Small intestine - Part of the intestine where nutrients are absorbed into the body.</p> <p>Large intestine - Part of the intestine where water is absorbed from remaining waste food. Faeces are formed in the large intestine.</p> <p>Rectum - Part of the digestive system where faeces are stored before leaving the body through the anus.</p> <p>Teeth - Hard structures in the mouth that help with biting and chewing food.</p> <p>Amylase – Chemical that is found in the saliva.</p>		<p>make the bike harder to pedal so it is unhelpful.</p> <p>Isaac Newton is famously thought to have developed his theory of gravity when he saw an apple fall to the ground from an apple tree.</p> <p>Forces - Pushes or pulls. Gravity - A pulling force exerted by the Earth (or anything else which has mass). Earth's gravitational pull - The pull that Earth exerts on an object, pulling it towards Earth's centre. It is the Earth's gravitational pull which keeps us on the ground.</p> <p>Weight - The measure of the force of gravity on an object. Mass - A measure of how much matter (or 'stuff') is inside an object.</p> <p>Friction - A force that acts between two surfaces or objects that are moving, or trying to move, across each other.</p> <p>Air resistance - A type of friction caused by air pushing against any moving object.</p> <p>Water resistance - A type of friction caused by water pushing against any moving object.</p> <p>Buoyancy - An object is buoyant if it floats. This is because the weight of the object is equal to the upthrust.</p> <p>Streamlined - When an object is shaped to minimise the effects of air or water resistance.</p> <p>Mechanism - Mechanisms are simple machines with moving parts that change input forces and movement into a set of useful output forces. Examples of</p>

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
							mechanisms are pulleys, gears and levers. Upthrust - A force that pushes objects up, usually in water.
		<p>Cycle B</p> <p>Animals, including Humans – Lifecycles</p> <ul style="list-style-type: none"> 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) <p>LI: To be able to find out how animals change as they grow into adults LI: To be able name and order the stages of a human life cycle LI: To be able compare the life cycles stages of different animals LI: To know the basic needs of animals LI: To know the difference between basic needs and wants of humans, comparing human needs to animal needs</p>	<p>Cycle B</p> <p>Plants</p> <ul style="list-style-type: none"> 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>LI: To be able to name the different parts of flowering plants and explain their functions LI: To be able to set up an investigation to find out what plants need to grow well LI: To be able to investigate how water is transported in plants LI: To be able to name the different parts of a flower and explain their role in pollination and fertilisation</p>	<p>Cycle B</p> <p>Working Scientifically</p> <ul style="list-style-type: none"> LI: To be able to plan a scientific enquiry to answer questions, including recognising and controlling variables <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <ul style="list-style-type: none"> LI: To be able to take measurements, using a scientific equipment, with increasing accuracy and precision <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <ul style="list-style-type: none"> LI: To be able to record data and results of increasing complexity using scientific diagrams and labels <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <ul style="list-style-type: none"> LI: To be able to use test results to make predictions to set up further comparative and fair tests <p>Using test results to make predictions to set up further comparative and fair tests</p>			

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
					LI: To be able to understand and order the stages of the life cycle of a flowering plant		<ul style="list-style-type: none"> LI: To be able to report and present findings, including conclusions, causal relationships and explanations of and a degree of trust in result Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations <ul style="list-style-type: none"> LI: To be able to identify scientific evidence that has been used to support or refute ideas or arguments Identifying scientific evidence that has been used to support or refute ideas or arguments
		Key Knowledge/Key Vocabulary To stay alive, all animals have three basic needs for survival: air, water and food. To grow into a healthy adult, we must eat the right types of food in the right amount and exercise. Being active and exercising keeps our bodies and minds healthy. To stop germs from spreading, it is important to be hygienic. Some animals give birth to live young. Some animals lay eggs which the young hatch from. Both of these types of young then develop into adults.	Key Knowledge/Key Vocabulary Roots - These anchor the plant into the ground and absorb water and nutrients from the soil. Stem - This holds the plant up and carries water and nutrients from the soil to the leaves. A trunk is the stem of a tree. Leaves - These make food for the plant using sunlight and carbon dioxide from the air. Flowers - These make seeds to grow into new plants. Their petals attract pollinators to the plant. Nutrients - These substances are needed by living things to grow and		Key Knowledge/Key Vocabulary Comparative – A comparative test compares the effect of different actions or the characteristics of a different material Record - To write down findings, results of measurements of an experiment Measurements - The size, length or amount of something Fair Test - A fair test only changes one thing when attempting to answer a scientific question Accuracy - To repeat an experiment in order to gain accurate measurements Record data - Information that is collected		

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
			<p>Some offspring look like their adult when they are born. Some offspring do not look like their adult when they are born.</p> <p>All young animals change as they go through the different stages of their life cycle and grow into adults.</p> <p>Adult - A fully grown animal or plant. Develop - To grow bigger and become stronger. Life cycle - The changes living things go through to become an adult. Offspring - The child of an animal. Young - Offspring that has not reached adulthood. Live young - Offspring that has not hatched from an egg. Diet - The food and water that an animal needs. Exercise- A physical activity to keep your body fit. Germs - Tiny living things that can cause disease. Hygiene - How we keep ourselves and the world around us clean so we can stay healthy and stop germs spreading. Nutrition- Food needed to live.</p>		<p>survive. Plants get nutrients from the soil and also make their own food in their leaves. Evaporation - When a liquid turns into a gas. Fertilisation - When the male and female parts of the flower have mixed in order to make seeds for new plants. Petal - The brightly coloured part of the flower that attracts insects to pollinate the plant. Stamen - The male parts of the flower. The stamen is made up of the anther and the filament. The filament's job is to hold up the anther. The job of the anther is to make the pollen. Carpel (pistil) - The female parts of the flower. Made up of the stigma, style and ovary. The job of the style is to hold up the stigma. The stigma collects the pollen when a pollinator brushes by it. The ovary contains the ovules, which are the part of the flower that gets fertilised and eventually becomes the new seed. Sepal - Leaf-like structures that protect the flower and petals before they open out. Pollination - When pollen (a fine powdery substance produced by a flowering plant) is moved from the male anther of a flower to the female stigma. Pollinator - Animals or insects which carry pollen between plants. Examples include birds, bees and bats. Germination - When a seed starts to grow. Seed dispersal - A method of moving the seeds away from the parent plant so that the seeds have the best chance of survival.</p>		<p>Evidence - The use of facts or findings to prove an idea or notion Predictions – A guess at what will happen in an investigation, based on knowledge</p>

Summer 1

EYFS		Years 1 & 2		Years 3 & 4		Years 5 & 6	
Cycle A	<p>Exploration and enquiry opportunities in preparation for KS1: Properties of materials</p> <p>Children explore the basis of properties of materials - Identifying the best materials for superhero clothing (Including everyday heroes)</p> <p>Children continue to observe changes in the seasons – during continuous provision and Forest School</p> <p>Children will also learn about taking care of their teeth (Linked to PSED)</p>	Cycle A	<p>Seasonal Changes</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. <p>LI: To be able to identify seasonal changes LI: To be able to describe how things change between seasons LI: To be able to compare the four seasons LI: To be able to observe and describe the weather LI: To be able to describe what happens in summer and how to stay safe in the sun</p>	Cycle A	<p>Living Things and their habitats</p> <ul style="list-style-type: none"> 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 <p>LI: To be able to identify a variety of habitats and explore why organisms live in different habitats LI: To be able to group organisms according to their characteristics LI: To be able to classify animals into specific groups according to their characteristics LI: To be able to use a classification key to identify animals LI: To be able to identify and classify a variety of British plants LI: To explore the human impact on habitats and environments</p>	Cycle A	<p>Living Things and their Habitats – Under the sea</p> <ul style="list-style-type: none"> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics <p>LI: To be able to give reasons for classifying animals based on their similarities and differences LI: To be able to describe how living things are classified into groups LI: To be able to identify the characteristics of under the sea animals LI: To be able to describe and investigate helpful and harmful microorganisms LI: To be able to identify the characteristics of different types of microorganisms LI: To be able to classify organisms found in my local habitat</p>

<p>Cycle B</p>	<p>Children experiment with a selection of materials to explore their properties through play and enquiry.</p> <p>Material Waterproof Shiny - reflective Stretchy - flexible Warm Bright Thick Summer Teeth Toothbrush Dentist Sugar</p>	<p>Key Knowledge/Key Vocabulary <u>The Four Seasons:</u> Autumn September October November Spring March April May Winter December January February Summer June July August Seasons - There are four seasons each year, autumn, winter, spring and summer. Autumn - In autumn, the weather begins to get colder. The leaves start to fall from the trees. The amount of daylight becomes less. This means the daytimes are shorter and the night times are longer. Winter - In winter, the weather is much colder. Sometimes it is cold enough to freeze, leaving frost and ice on the ground. It sometimes snows. Many trees have bare branches as all their leaves have fallen off. The daytimes are the shortest in the year and the night times are the longest. Spring - In spring, the weather starts to get warmer. Leaves begin to grow and some trees may blossom (have flowers). Days start to have more daylight hours. Summer - In summer, the weather gets hotter. Days in summer have the most daylight hours. Trees are full of leaves and there are lots of flowers, bees, butterflies and other insects. Weather - The weather includes the temperature outside, the wind direction and strength, as well as rain, cloud, snow and sun.</p>	<p>Key Knowledge/Key Vocabulary <u>Life Processes</u> To stay alive and healthy, all living things need certain conditions that let them carry out key life processes.</p> <p>Changes to an environment can be natural or caused by humans. Changes to an environment can have positive as well as negative effects. Here are some examples of things that can change an environment: Natural – earthquakes, storms, floods, droughts, wildfires and the seasons Man-made – deforestation, pollution, urbanisation, the introduction of new animal or plant species to an environment and creating new nature reserves</p> <p>Plants and animals rely on the environment to give them everything they need. Therefore, when habitats change, it can be very dangerous to the plants and animals that live there.</p> <p>Animals can be grouped in lots of different ways based upon their characteristics.</p> <p>Plants can be sorted into many different groups. For example: Flowering plants and non-flowering plants. Organisms -This is another word that can be used to mean 'living things'. Life processes - The things living things do to stay alive. Respiration - A process where plants and animals use oxygen gas from the air to help turn their food into energy.</p>	<p>Key Knowledge/Key Vocabulary In 1735, Swedish Scientist Carl Linnaeus first published a system for classifying all living things. An adapted version of this system is still used today: The Linnaeus System.</p> <p>Living things can be classified by eight levels. The number of living things in each level gets smaller until the one animal is left in its species level.</p> <p>Each group allows scientists to observe and understand the characteristics of living things more clearly. They group similar things together then split the groups again and again based on their differences.</p> <p>Microorganisms are viruses, bacteria, moulds and yeast. Some animals (dust mites) and plants (phytoplankton) are also microorganisms.</p> <p>Microorganisms are very tiny living things that can only be seen using a microscope. They can be found in and on our bodies, in the air, in water and on objects around us.</p> <p><u>Helpful Microbes:</u></p> <ul style="list-style-type: none"> • Bacteria – cheese • Yeast – wine • Bacteria – yoghurt Yeast – bread dough • Penicillium fungi – antibiotics <p><u>Harmful Microbes:</u></p> <ul style="list-style-type: none"> • Bacteria – salmonella is a bacterium that can lead to food poisoning
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		<p>Cycle B</p>	<p>Floating and Sinking</p> <ul style="list-style-type: none"> • 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, bending, twisting and stretching. <p>LI: To be able to identify a variety of everyday materials</p>	<p>Cycle B</p>	<p>Animals, including Humans - Food chain</p> <ul style="list-style-type: none"> • 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>LI: To be able to plan and set up an investigation into tooth decay</p>	<p>Cycle B</p>	<p>Changes of State – Filtration</p> <ul style="list-style-type: none"> • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating <p>LI: To be able to understand how filtration works LI: To be able to understand the importance of filtration LI: To be able to plan how to separate a solid from a liquid through filtration LI: To be able to separate a solid from a liquid through filtration</p>

		<p>LI: To be able to compare the suitability of everyday materials</p> <p>LI: To know how the shapes of solid objects can be changed by squashing, bending, twisting and stretching</p> <p>LI: To be able to plan to see if materials float or sink</p> <p>LI: To be able to investigate materials to see if they float or sink</p>	<p>LI: To be able to draw conclusions from an investigation about keeping teeth healthy</p> <p>LI: To be able to demonstrate and explain the process of digestion</p> <p>LI: To be able to construct food chains for different habitats and explain findings using the correct scientific language.</p> <p>LI: To be able to compare the teeth of different animals and link this with their role in a food chain</p> <p>LI: To be able to identify and classify carnivores, herbivores and omnivores.</p> <p>LI: To be able to construct and interpret a variety of food chains.</p> <p>LI: To be able to identify the different types of teeth in humans and their simple functions.</p> <p>LI: To be able to explore the different ways of keeping teeth healthy.</p> <p>LI: To be able to describe the simple functions of the basic parts of the digestive system</p>	<p>LI: To be able to write up my investigation</p>
		<p>Key Knowledge/Key Vocabulary</p> <p>Density</p> <p>Objects like marbles, coins and stones are more dense than water. Their tiny molecules are really close together. When you put them in water, they sink to the bottom.</p> <p>But objects like corks, wood and sponges are less dense than water. Their tiny molecules are further apart so they float on water. Objects that are hollow (with air inside) also float. This is because air is less dense than water.</p>	<p>Key Knowledge/Key Vocabulary</p> <p>The teeth of an animal are designed to eat different foods depending on the diet of the animal.</p> <p>An example of a food chain</p> <p>Producer → Primary consumer prey → Secondary consumer predator/prey → Tertiary consumer predator</p> <p>Herbivore – An animal that eats plants</p> <p>Carnivore – An animal that feeds on other animals</p> <p>Omnivore – An animal that eats plant and animals</p> <p>Producer – An organism, such as a plant, that produces its own food</p>	<p>Key Knowledge/Key Vocabulary</p> <p>Filtration, or filtering, is a separation technique.</p> <p>Everyday Filtering</p> <p>There are filters in cars, vacuums and tumble dryers too. Cars have air and oil filters. They help to filter out any impurities. Vacuums have filters to trap the dust. Tumble dryers have filters to capture threads and hair.</p> <p>The material being used is called the filter. The substance that can move through the filter is called the filtrate. The substance that is left behind in the</p>

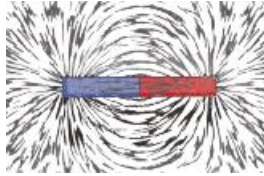
		<p>The shape of an object matters too. When more of the surface of an object is touching the water, the object floats better.</p> <p>When more of the shape is touching the water it is more likely to float. The object pushes against the water, but the water pushes back! If lots of the object is touching the water, the water will push back enough to make the object float. This means the object is buoyant (even if the material is dense).</p> <p>Material - What something is made from.</p> <p>Float - Rest on and stay above the surface of a liquid.</p> <p>Sink - Goes below the surface of a liquid</p> <p>Buoyancy - An object's ability to float in water or air</p>		<p>Predator – An animal that hunts and eats other animals</p> <p>Prey – An animal that gets hunted and eaten by another animal</p>		<p>filter is called the residue. The process is called filtration.</p> <p>Filtrate</p> <p>Residue</p> <p>Insoluble</p> <p>Soluble</p> <p>Dissolve</p> <p>Filter</p> <p>Container</p> <p>Gas</p> <p>Liquid</p> <p>Solid</p>
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Summer 2

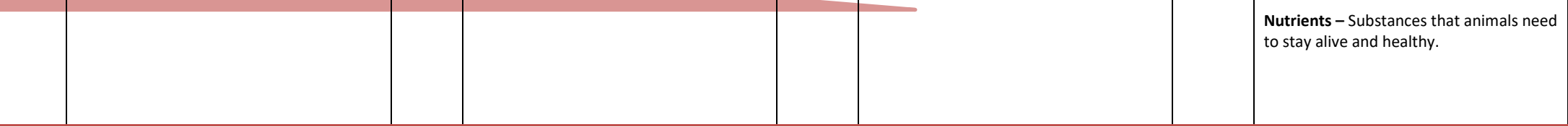
EYFS		Year 1 & 2		Years 3 & 4		Years 5 & 6	
Cycle A	<p>Children will explore animals living in the sea/ocean to other animals in different environments. They will identify how animals and plants adapt to life under water.</p> <p>Children will also explore floating and sinking properties</p> <p>ELG (The Natural World)</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants; Know some similarities and differences between the natural world around them and contrasting environments, 	Cycle A	<p>Living things and their habitats – Jungle</p> <ul style="list-style-type: none"> 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 	Cycle A	<p>Sound</p> <ul style="list-style-type: none"> 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 sounds get fainter as the distance from the sound source increases. <p>LI: To be able to describe and explain sound source</p>	Cycle A	<p>Health Education/SRE</p> <p>Refer to SRE POK</p>

	<p>drawing on their experiences and what has been read in class;</p> <ul style="list-style-type: none"> Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 		<ul style="list-style-type: none"> 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>LI: To be able to describe different habitats and identify animals in it. LI: To be able to map a jungle habitat and identify what is in it. LI: To be able to identify jungle animals in their habitat and their characteristics. LI: To be able to identify how a jungle animal is suited to its habitat and how they depend on each other. LI: To be able to describe how jungle animals get their food.</p>		<p>LI: To be able to explain how different sound travels LI: To be able to explore the relationship between distant and volume LI: To be able to explore ways to change the pitch of a sound LI: To be able to investigate ways to absorb sound LI: To be able to make a musical instrument to play different sounds</p>	
Cycle B	<p>Children will discuss, read and write about different animals – linked to underwater. Including their own observations of them first hand.</p> <p>Children will test different materials for their ability to float/sink.</p> <p>Fish Octopus Starfish Shark Jellyfish Stingray Seaweed Urchin Fin Tentacles Gills Float Sink</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Living Dead Never Living Examples of habitats: Woodland, urban, coastal, rainforest, arctic, desert, ocean, river and mountain</p> <p>Examples of microhabitats: Short grass, flowers, inside rotting wood, under leaves, in and on soil.</p> <p>Life processes – These are the things that all living things do. They move, breathe, sense, grow, make babies, get rid of waste and get their energy from food.</p> <p>Living – Things that are living have all the life processes.</p>		<p>Key Knowledge/Key Vocabulary</p> <p>Sound is a type of energy. Sounds are created by vibrations. The louder the sound, the bigger the vibration.</p> <p>Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound.</p> <p>The size of the vibration is called the amplitude . Louder sounds have a larger amplitude, and quieter sounds have a smaller amplitude.</p> <p>Sound can travel through solids, liquids and gases. Sound travels as a wave, vibrating the particles in the medium it is travelling in. Sound cannot travel through a vacuum.</p>	<p>Key Knowledge/Key Vocabulary</p> <p>Refer to SRE POK</p>

		<p>Dead – Things that are dead were once living. They did have all the life processes but don't now.</p> <p>Never living – Things made out of metal, plastic or rock were never living. They never had the life process.</p> <p>Food chain – A food chain shows how each animal get its food, Food chains are one of the ways that living things depend on each other to stay alive.</p> <p>Food sources – This is the place a living thing's food comes from.</p> <p>Habitat – A habitat is a natural place something lives. A habitat provides living things with everything they need to survive such as food, shelter and water.</p> <p>Microhabitat – A microhabitat is a very small habitat in places like under a rock, under leaves or on a branch. Minibeasts live in microhabitats. The microhabitats have everything they need to survive.</p> <p>Depend – Many living things in a habitat depend on each other. This mean they need each other for different things.</p> <p>Survive – This means to stay alive.</p>	<p>Inside your ear, the vibrations hit the eardrum and are then passed to the middle and then the inner ear. They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.</p> <p>Sound energy can travel from particle to particle far easier in a solid because the vibrating particles are closer together than in other states of matter.</p> <p>Vibration - A quick movement back and forth.</p> <p>Sound wave - Vibrations travelling from a sound source.</p> <p>Volume - The loudness of a sound.</p> <p>Amplitude - The size of a vibration. A larger amplitude = a louder sound.</p> <p>Pitch - How low or high a sound is</p> <p>Ear - An organ used for hearing.</p> <p>Particles - Solids, liquids and gases are made of particles. They are so small we are unable to see them.</p> <p>Distance - A measurement of length between two points.</p> <p>Soundproof - To prevent sound from passing through.</p> <p>Absorb sound - To take in sound energy. Absorbent materials have the effect of muffling sound.</p> <p>Vacuum - A space where there is nothing. There are no particles in a vacuum.</p> <p>Eardrum - A part of the ear which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer ear from the middle and inner ear. Sound waves make the eardrum vibrate.</p>		
		<p>Cycle B</p> <p>Being Healthy LI: To know how we can stay healthy</p>	<p>Cycle B</p> <p>Magnets</p>	<p>Cycle B</p> <p>Animals, including humans – Circulatory System</p>	

		<p>LI: To know the difference between healthy and unhealthy activities LI: To know how to keep teeth healthy LI: To know how medicines can help people stay healthy LI: To know the benefits of exercise to the body</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 2 poles • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing <p>LI: To be able to sort magnetic and non-magnetic materials LI: To be able to investigate the strength of magnets LI: To be able to explore magnetic poles LI: To be able to observe how magnets attract some materials LI: To be able to predict whether 2 magnets will attract or repel each other</p>	<ul style="list-style-type: none"> • 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>LI: To know the three main parts of the circulatory system and describe the job of the heart LI: To be able to describe the important jobs of the blood vessels and blood LI: To be able to describe the importance of exercise and how it affects the heart LI: To be able to understand that regular exercise is important for a healthy body LI: To be able to explain how diet and exercise affect the body LI: To be able to recognise the impact of drugs and alcohol on the way bodies function</p>
		<p>Key Knowledge/Key Vocabulary The principles of planning and preparing a range of healthy meals. The characteristics of a poor diet and risks associated with unhealthy eating (including, for example, obesity and tooth decay) and other behaviours (e.g. the impact of alcohol on diet or health).</p> <p>The characteristics and mental and physical benefits of an active lifestyle.</p>	<p>Key Knowledge/Key Vocabulary Like poles repel, opposite poles attract. A magnetic field is invisible. You can see the magnetic field here though. This is what happens when iron filings are placed on top of a piece of paper with magnet underneath.</p> 	<p>Key Knowledge/Key Vocabulary Mammals have hearts with four chambers. Notice how the blood that has come from the body is deoxygenated, and the blood that has come from the lungs is oxygenated again.</p> <p>Capillaries are the smallest blood vessels in the body and it is here that the exchange of water, nutrients, oxygen and carbon dioxide takes place.</p>

		<p>The importance of building regular exercise into daily and weekly routines and how to achieve this; for example walking or cycling to school, a daily active mile or other forms of regular, vigorous exercise.</p> <p>The risks associated with an inactive lifestyle (including obesity).</p> <p>How and when to seek support including which adults to speak to in school if they are worried about their health.</p> <p>Healthy - To be in a good physical or mental condition and to be in good health.</p> <p>Exercise - An activity that requires physical effort and improves health and fitness.</p> <p>Positivity - To be positive or optimistic in your attitude.</p> <p>Fitness - To be physically fit and healthy.</p> <p>Balanced diet - A diet that includes a variety of different types of food.</p> <p>Growth mindset - Developing your basic abilities through dedication and hard work.</p>	<p>The needle is a compass is a magnet. A compass always points north-south on Earth.</p> <p>The objects contain iron, nickel or cobalt: Hair pin, Paper clip and scissors. Not all metals are magnetic.</p> <p>These objects do not contain iron, nickel or cobalt: Wooden spoon, scarf, gold bar and plastic bottle.</p> <p>Magnet – An object which produces a magnetic force that pulls certain objects towards it.</p> <p>Magnetic – Objects which are attracted to a magnet are magnetic, Objects containing iron, nickel or cobalt metals are magnetic.</p> <p>Magnetic Field – The area around a magnet where there is a magnetic force which will pull magnetic objects towards the magnet.</p> <p>Poles – North and South poles are found at different end of a magnet.</p> <p>Repel – Repulsion is a force that pushes objects away. E.g. when a north pole is placed near the north pole of another magnet, the two poles repel (push away from each other).</p> <p>Attract – Attraction is a force that pulls objects together, E.g. when a north pole is placed near the south pole of another magnet, the two poles attract (pull together).</p>	<p>The heart pumps blood to the lungs to get oxygen. It then pumps this oxygenated blood around the body.</p> <p>Regular exercise:</p> <ul style="list-style-type: none"> • strengthens muscles including the heart muscle; • improves circulation; • increases the amount of oxygen around the body; • releases brain chemicals which help you feel calm and relaxed; • helps you sleep more easily; • strengthens bones. <p>A healthy diet involves eating the right types of nutrients in the right amounts. Drugs, alcohol and smoking have negative effects on the body.</p> <p>Circulatory system – A system which includes the heart, veins, arteries and blood transporting substances around the body</p> <p>Heart – An organ which constantly pumps blood around the circulatory system</p> <p>Blood vessels – The tube-like structure that carry blood through the tissues and organs. Vein, arteries and capillaries are the three types of blood vessels.</p> <p>Oxygenated blood - Oxygenated blood has more oxygen. It is pumped from the heart to the rest of the body.</p> <p>Deoxygenated blood - Deoxygenated blood is blood where most of the oxygen has already been transferred to the rest of the body.</p> <p>Drug – A substance containing natural or man-made chemicals that has an effect on your body when it enters your system.</p> <p>Alcohol – A drug produces from grains, fruits or vegetables when they are put through a process called fermentation.</p>
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Nutrients – Substances that animals need to stay alive and healthy.