



Science Long Term Plan Cycles A and B

CYCLE A						
Year	Term	Learning Challenge	Working Scientifically	National Curriculum	Objectives	Vocabulary
Years 1 and 2	Autumn 1 and 2	Why are there so many leaves on the floor?	Pupils should ask people questions and use simple secondary sources to find answers. They should use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language	<p>Observe changes across the four seasons;</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Know the names and characteristics of each season</p> <p>Know about the weather associated with each season</p> <p>Know about and observe the changes in the seasons</p> <p>Know some the more familiar symbols associated with weather maps</p> <p>Asking simple scientific questions</p> <p>Using simple equipment to make observations</p> <p>Carrying out simple tests</p> <p>Identifying and classify things</p> <p>Explaining to others what I have found out</p> <p>Using simple data to answer questions</p>	<p>Moon</p> <p>Night</p> <p>Light</p> <p>Dark</p> <p>Shadow</p> <p>Stars</p> <p>Nocturnal</p> <p>Diurnal</p> <p>Shiny</p> <p>Dull</p> <p>Florescent</p> <p>Illuminate</p>



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Year 1 and 2	Spring 1	<p>How can we grow our own salad?</p>	<p>Making sure that children work out what a 'fair test' is. Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.</p> <p>Vocabulary: Fair test, observe, record</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 suitable temperature to grow and stay healthy.</p>	<p>Year 1</p> <ul style="list-style-type: none"> • They use simple equipment to help them make observations. • They think of some questions to ask. • They answer some scientific questions. • They give a simple reason for their answers. • They explain what they have found out. • They name the petals, stem, leaf and root of a plant. • They describe the parts of a plant. (roots, stem, leaves, flowers) <p>Year 2</p> <ul style="list-style-type: none"> • They use some scientific words to describe what they have seen and measured. • They describe some of the life processes common to plants and animals, including humans. • They describe what plants need to survive. • They describe how seeds and bulbs grow into plants. • They describe what a plant needs to grow and stay healthy. • They explain that plants grow and reproduce. • They compare how plants grow in different conditions by making measurements. 	<p>Plant Leaf Leaves Stem Root Sunlight Oxygen Flowering Cycle Petals Classify Pollination Seed Dispersal Germinate Water Bulbs Temperature</p>
	Spring 2					
Y1 and Y2	Summer 1 and 2	<p>Which birds and plants would Little Red Riding Hood find in our park?</p>	<p>Observing closely, using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants and trees. Children to keep records of how plants have changed</p>	<p>(Y1 Plants) Identify and name a variety of common, wild and green plants, including deciduous and evergreen trees; Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>(Animals, including humans)</p>	<p>Year 1</p> <ul style="list-style-type: none"> • They talk about what they <see, touch, smell, hear or taste>. • They use simple equipment to help them make observations. • They put some information in a chart or table. • They identify and classify things they observe. • They think of some questions to ask. • They answer some scientific questions. 	<p>Common Plant green Leaf Leaves Stem Root Sunlight Oxygen Wild plants Flowering</p>



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			<p>over time, for example, the leaves falling off trees and buds opening; and compare and contrast how different plants change over time.</p> <p>Vocabulary: Observe, identify, group, record, compare</p>	<p>Identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals;</p>	<ul style="list-style-type: none"> • They give a simple reason for their answers. • They explain what they have found out. • They identify and name a range of common plants and trees. • They recognise deciduous and evergreen trees. • They sort some plants by size. <p>Year 2</p> <ul style="list-style-type: none"> • They find out by watching, listening, tasting, smelling and touching. • They talk about similarities and differences. • They explain what they have found out using scientific vocabulary. • They make accurate measurements. • They sort some plants by those that can be eaten and those that cannot. • They can explain, identify and name a range of common plants and trees. • Notice that animals, including humans, have offspring, which grow into adults. 	<p>Cycle Petals Classify Deciduous Evergreen Pollination Seed Dispersal Germinate Water</p>
Y3 and Y4	Autumn 1	<p>How would you cope without electricity for one day?</p>	<p>Observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p> <p>Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced</p>	<p>Electricity (Y4 Unit) National Curriculum: 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>I can explain ways that electricity is generated.</p> <p>Identify common appliances that run on electricity by learning</p> <p>Distinguish between appliances that use and do not use electricity, the different types of electricity and identify how to stay safe when using electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p>	<p>Electricity Circuit Unit Cells Wire Bulb Switch Buzzer Loop Battery Conductor Insulator Metal Travel Speed Candle Lamp</p>



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				<p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Identify whether or not a lamp will light in a simple series circuit</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units</p> <p>Identify and sort materials into electrical conductors or insulators.</p> <p>Explain how a switch works and why they are needed.</p> <p>Record and report on an investigation</p>	<p>Dependence</p> <p>Bright</p> <p>Motor</p> <p>Dim</p>
Autumn 2		<p>How far can you throw your shadow?</p>	<p>Set up a fair test to see what happens when there is more than one source of light and record findings.</p> <p>Use results to draw simple conclusions and make predictions;</p> <p>Looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</p>	<p>Light (Y3 Unit) National Curriculum Links:</p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>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 a solid object</p> <p>Find patterns in the way that the size of shadows change.</p>	<p>Recognise that we need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces by choosing the most reflective material for a new book bag.</p> <p>Investigate which surfaces reflect light</p> <p>Notice that light is reflected from surfaces by playing mirror games.</p> <p>Use a mirror to reflect light and explain how mirrors work.</p> <p>Understand that light from the sun can be dangerous and that there are ways to protect our eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Investigate which materials block light to form shadows.</p>	<p>Light</p> <p>Shadow</p> <p>Sun</p> <p>Moon</p> <p>Solid object</p> <p>Blocked</p> <p>Translucent</p> <p>Opaque</p> <p>Reflect</p> <p>Surface</p> <p>Mirror</p> <p>Light Source</p> <p>Natural</p> <p>Artificial</p> <p>Bulb</p> <p>Torch</p> <p>Flame</p> <p>UV rays</p> <p>Sunlight</p> <p>Skin damage</p>



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					Find patterns in the way that the size of shadows change by investigating what happens when you change the distance between the object and the light source.	
					Record and report on an investigation	
	Spring 1 & 2	<p>How would we survive without water?</p>	<p>Grouping & Classifying different materials; Explore the effect of temperature on substances such as chocolate, butter, cream (for example making chocolate crispy cakes and ice cream for a class party) Observe and record evaporation over a period of time, such as a puddle in the playground or wet washing on a line, and investigate the effect of temperature on washing drying or ice melting.</p>	<p>States of Matter (Y4 Unit) NC Links: 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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases by sorting and describing materials into solids, liquids and gases</p> <p>Observe that some materials change state when they are heated or cooled, and measure temperature at which this happens in degrees Celsius (°C) by investigating how heating and cooling can change a material's state</p> <p>Explore how water changes state.</p> <p>Associate the rate of evaporation with temperature by investigating the effect of temperature on drying washing.</p> <p>Make systematic, careful and accurate observations and measurements and report on findings from enquiries by displaying results and conclusions from investigations.</p> <p>Identify the melting and freezing point of water</p> <p>Explain what happens to water at the different stages of the water cycle.</p> <p>Identify the part played by evaporation and condensation in the water cycle by creating a model of the water cycle</p>	<p>Liquid Gas State Solid Particles Temperature Heat Freeze Melt Cool Degrees Celsius Condensation Evaporation Water cycle Puddles Window Drying Properties Solidify Melt thermometer</p>



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	Summer 1 & 2	<p>How can Usain Bolt move so quickly?</p>	<p>Asking relevant questions; Identifying and grouping animals with and without skeletons and observing and comparing their movement; Exploring ideas about what would happen if humans did not have skeletons; Compare and contrast the diets of different animals; Research different food groups and how they keep us healthy, and design meals based on what they find out.</p>	<p>Animals, including humans (Y3 Unit) National Curriculum Links:</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>Identify that they cannot make their own food; they get nutrition from what they eat, and comparing how plants and humans obtain food.</p> <p>Explain how living things obtain food. Identify that animals, including humans, need the right types of nutrition by examining food groups and nutrient groups.</p> <p>State why animals, including humans, need the right type of nutrients.</p> <p>Understand what food labels on packets show and gather information from food labels to answer questions.</p> <p>Identify that humans and some other animals have skeletons by identifying the parts of the skeleton. Identify and explain the three main functions of a skeleton.</p> <p>They learn some names of bones in the human body and carry out an investigation to explore if people with longer femurs jump further.</p> <p>Recognise that humans and some other animals have muscles for movement by examining how muscles work.</p> <p>Understand why we need muscles to move.</p> <p>Setting up simple practical enquiries in the context of investigating pairs of muscles.</p> <p>Recording findings using simple scientific language by writing the results of the practical investigation.</p>	<p>Healthy food Balanced diet Nutrition Food groups Skeleton Bones Tibia Fibia Femur Support Protection Muscles Endoskeleton Exoskeleton Voluntary Involuntary Contract Relax</p>
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	AUTUMN 1	<p>Do all animals and plants start life as an egg?</p>	<p>Pupils could work scientifically by:</p> <ul style="list-style-type: none"> -Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas, in prehistoric times) -Asking pertinent questions and suggesting reasons for similarities and differences. -Grow new plants from different parts of a parent plant, for example seeds, stem and root cuttings, tubers, bulbs. -Observe changes in an animal over a period of time (For example hatching chicks) -Compare how different animals reproduce and grow. 	<p>Living things and their habitats, Y5 Unit National Curriculum Link:</p> <ul style="list-style-type: none"> • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird <p>Describe the life process of reproduction in some plants and animals</p>	<p>Do all animals and plants start life as an egg?</p> <ul style="list-style-type: none"> • I can describe how some plants reproduce. • I can describe the life cycles of different mammals, insects, birds and amphibians. • I can explore the work of a natural scientist 	<p>Asexual reproduction Fertilise Gestation Life cycle Metamorphosis Pollination Reproduction Sexual reproduction</p>
Year 5 & 6	Autumn 2	<p>How different will you be when you are as old as your grandparents? (Animals, including human)</p>	<p>Pupils could work scientifically by:</p> <ul style="list-style-type: none"> -Researching the gestation periods of other animals and comparing them with humans; -Find out and record the length and mass of a baby as it grows -Research and draw a timeline to indicate stages in the growth and development of humans. 	<p>Animals, including humans, Y5 Unit National Curriculum Links: Describe the changes as humans develop to old age.</p>	<p>How different will you be when you are as old as your grandparents?</p> <ul style="list-style-type: none"> • I can describe the stages of human development. • I understand growth milestones • I can describe and explain the main changes that occur during puberty. • I can identify the changes that take place in old age. 	<p>Adolescent Ageing Development Expectancy Generations Gestation Lifecycle Milestones Puberty</p>
	SPRING 1 & 2	<p>Could you be the next CSI investigator?</p>	<p>Pupils should work scientifically by:</p> <ul style="list-style-type: none"> -Carrying out tests to answer questions such as 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making black-out curtains?' 	<p>Changes of State and Materials (Y5 Unit) National Curriculum Link:</p> <ul style="list-style-type: none"> • Compare and group together everyday materials on the basis of their properties, including their hardness, 	<ul style="list-style-type: none"> • I can compare materials according to their properties. • I can investigate thermal conductors and insulators. • I can investigate which electrical conductors make a bulb shine brightest. • I can investigate materials which will dissolve. 	<p>Condensing Conductor Evaporating Freezing Filtering Gases Insulator Irreversible Liquids Materials</p>



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			<p>-Compare materials to make a switch in a circuit -Observe and compare the changes that take place when burning materials, or when baking bread or cakes. -Research how chemical changes have an impact on our lives</p>	<p>solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <ul style="list-style-type: none">• Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.• Demonstrate that dissolving, mixing & changes of state are reversible changes• Explain that some changes results in	<ul style="list-style-type: none">• I can use different processes to separate mixtures of materials.• I can identify and explain irreversible chemical changes.	<p>Melting Reversible Separated Sieving Solids Soluble Solution Transparency</p>
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			<p>-Designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works;</p> <p>-Investigating the relationship between light sources, objects and shadows by using shadow puppets</p> <p>-Extend their experience of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur)</p>	<ul style="list-style-type: none"> Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 	<ul style="list-style-type: none"> I can understand how mirrors reflect light, and how they can help us see objects. I can investigate how refraction changes the direction in which light travels. I can investigate how a prism changes a ray of light to show the spectrum. I can investigate how light enables us to see colours. I can explain why shadows have the same shape as the object that casts them. 	<p>Refraction</p> <p>Spectrum</p> <p>Prism</p> <p>Shadow</p> <p>Transparent</p> <p>Translucent</p> <p>Opaque</p>
CYCLE B						
	Autmun 1	<p>Why are humans not like tigers?</p>	<p>Working Scientifically: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts;</p> <p>Construct a simple food chain that includes humans (eg. Grass, cow, human);</p> <p>Describe the conditions in different habitats and micro-habitats and find out how the conditions affect the number and types of plants and animals that live there.</p>	<p>Y2 Unit - Living Things and their Habitats</p> <p>National Curriculum Links:</p> <p>Explore and compare differences between things that are living, dead and things that have never been alive;</p> <p>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;</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats;</p> <p>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and</p>	<p>Year 1</p> <ul style="list-style-type: none"> Match certain living things to the habitats they are found. Say something that is living and non-living things. Say a simple life processes common to plants and animals, including humans. Say how a habitat provides for the basic needs of things living there. Say what animals need to survive. Sort the life cycle of some living things. (e.g. egg, chick, chicken) Say some different habitats. Say how plants and animals are suited to their habitat. <p>Year 2</p> <ul style="list-style-type: none"> Match certain living things to the habitats they are found in and give an explanation why. Explain the differences between living and non-living things. Describe some of the life processes common to plants and animals, including humans. 	<p>mammal</p> <p>amphibian</p> <p>bird</p> <p>reptile</p> <p>fish</p> <p>habitat</p> <p>native</p> <p>nocturnal</p> <p>diurnal</p> <p>living</p> <p>dead</p> <p>extinct</p>



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				<p>identify and name different sources of food.</p>	<ul style="list-style-type: none"> Decide whether something is living, dead or non-living. Describe how a habitat provides for the basic needs of things living there. describe what animals need to survive. Describe the life cycle of some living things. (e.g. egg, chick, chicken) Describe a range of different habitats. Describe how plants and animals are suited to their habitat. 	
YEAR 1 & 2	AUTUMN 2	<p>How will 5 a day keep me healthy?</p>	<p>Working Scientifically:</p> <ul style="list-style-type: none"> -Children to conduct a survey to see how many children eat at least one piece of fruit each day and which is the most popular fruit. -Observing, asking questions about what humans need to stay healthy. 	<p>Animals including humans, National Curriculum Links:</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); - Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene. 	<p>Animals including humans</p> <ul style="list-style-type: none"> They describe what animals need to survive. They explain that animals grow and reproduce. They describe the life cycle of some living things. (e.g. egg, chick, chicken) They explain the basic needs of animals, including humans. They describe why exercise, a balanced diet and hygiene is important for humans. They explain how animals get their food and draw a simple food chain. 	<p>healthy diet balanced offspring grow adults survival water food air exercise hygiene nutrition reproduces baby toddler child teenager adult</p>
	SPING 1 & 2	<p>What would Traction Man use to build our school?</p>	<p>Comparing the uses of everyday materials in and around the school with materials found in other places (at home, on the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.</p>	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, rock, brick, paper and cardboard for particular uses;</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing,</p>	<p>Year 1</p> <ul style="list-style-type: none"> They distinguish between an object and the material from which it is made. They describe materials using their senses, using specific scientific words. They explain what material objects are made from. They explain why a material might be useful for a specific job. They name some different everyday materials. e.g. wood, plastic, metal, water and rock 	<p>Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy Rough, Smooth Stretchy, Stiff, Shiny Dull, Absorbent Opaque, Transparent Brick, Fabrics Squashing, Bending</p>



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			<p>Vocabulary: Compare, observe, record</p>	<p>bending, twisting and stretching.</p>	<ul style="list-style-type: none"> • They sort materials into groups by some given criteria. • They explain how solid shapes can be changed by squashing, bending, twisting and stretching. <p>Year 2</p> <ul style="list-style-type: none"> • They distinguish between an object and the material from which it is made. • They identify and name a range of everyday materials. (wood, plastic, metal, water, rock, brick, paper, glass) • They describe the simple physical properties of a variety of everyday materials. 	<p>Twisting, Elastic Foil</p>
	SUMMER 1&2	<p>How quickly do plants grow?</p>	<p>Working Scientifically:</p> <p>Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants: Describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees; Pupils might keep records of how plants have changed over time, for example the leaves falling off a plant and buds opening; and compare and contrast what they have found out about different plants.</p>	<p>National Curriculum Links:</p> <ul style="list-style-type: none"> • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<p>Know and explain how seeds and bulbs grow into plants.</p> <p>Know what plants need in order to grow and stay healthy (water, light & suitable temperature).</p> <p>Identify and name plants and animals in a range of habitats.</p> <p>Recognise some seeds and associate them with trees, e.g., horse chestnut</p> <p>Know which animals are woodland creatures asking simple scientific questions</p> <p>Using simple equipment to make observations</p> <p>Carrying out simple tests</p> <p>Identifying and classify things.</p> <p>Explaining to others what I have found out</p> <p>Using simple data to answer questions</p>	<p>Root Stem Leaf Flower Seed Mature Plot Temperature conditions</p>

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Year 3 & 4	AUTUMN 1	<p>What do rocks tell us about the way the Earth was formed?</p>	<p>Pupils could work scientifically by:</p> <ul style="list-style-type: none"> -observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; -Use a hand lens or microscope to identify and classify rocks according to whether they have grains, crystals or fossils in them; -Research and explore the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. -Explore different soils and identify similarities and differences between them, and investigate what happens when rocks are rubbed together or what changes occur when they are in water. -Exploring the strengths of different magnets and finding a fair way to compare them; -Sorting materials into those that are magnetic and those that are not; -Looking for patterns in the way that magnets behave in relation to each other and what might affect this; -Identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets 	<p>Rock + forces and magnets, Y3 Unit</p> <p>National Curriculum:</p> <p>Can I compare and group together different kinds of rocks on the basis of their appearance and simple physical properties?</p> <p>Can I describe in simple terms how fossils are formed when things that have lived are trapped within rock?</p> <p>Can I recognise that soils are made from rocks and organic matter?</p> <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>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Explain how different rocks can be useful to us.</p> <p>Begin to link properties of rocks with their uses.</p> <p>Compare and differentiate different types of rocks based their appearance.</p> <p>Describe how fossils are formed when they are trapped within a rock.</p> <p>Understand how igneous, metamorphic and sedimentary rocks are formed.</p> <p>Recognise that soils are made from rocks and organic matter.</p> <p>Observe that magnetic forces can be transmitted without direct contact</p> <p>Talk about how some magnets attract or repel each other</p> <p>Classify which materials are attracted to magnets</p> <p>Describe the speed and direction of moving objects</p>	<p>Rocks</p> <p>Mountains</p> <p>Cliffs</p> <p>Quarry</p> <p>Igneous</p> <p>Sedimentary</p> <p>Metamorphic</p> <p>Gravestone</p> <p>Diamond</p> <p>Crystal</p> <p>Porous</p> <p>Sculpture</p> <p>Organic matter</p> <p>Fossil</p> <p>Lava</p> <p>Cooling</p> <p>Appearance</p> <p>Properties</p> <p>Erosion</p> <p>Attract</p> <p>Repel</p> <p>Forces</p> <p>Surfaces</p> <p>Material</p> <p>Magnet</p> <p>Pole</p> <p>North Pole</p> <p>South Pole</p> <p>Magnetic field</p>

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Autumn 2	<p>Why is the sound of music enjoyed by so many? (Sound)</p>	<p>Pupils should work scientifically by:</p> <ul style="list-style-type: none"> -Finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thickness; -Make earmuffs from a variety of materials to investigate which provides the best insulation against sound. -Make and play their own instruments by using what they have found out about pitch and volume. 	<p>Sound, Y4 Unit National Curriculum:</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>Establish the link between vibrations and sounds.</p> <p>Recognise the role that the ear plays in capturing vibrations from sound.</p> <p>Recognise how distance from the sound source impacts the level of the sound.</p> <p>Discover patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p>	<p>Sound Vibration Ear Medium Travel Thickness Patterns Distance Air Hear Faint Loud Percussion Woodwind Brass Insulate Pitch</p>
Spring 1 & 2	<p>What Happens to the food we eat?</p>	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> - Comparing the teeth of herbivores and carnivores and suggesting reasons for differences; - Finding out what damages teeth and how to look after them <p>Draw and discuss their ideas about the digestive system and compare them with models of images.</p>	<p>Animals, including humans, Y4 Unit National Curriculum:</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>Begin to understand the circle of life and how energy is transferred from one living thing to another through the food they eat and the nutrients they need.</p> <p>Understand how nutrients are absorbed by the body.</p> <p>Investigate what happens to our food as it travels through our bodies.</p> <p>Describe how different teeth bite, grip, tear, crush, grind and chew and learn their scientific names and the reason for their strange shapes.</p> <p>Understand how an animal's diet can affect its teeth and poo.</p>	<p>Mouth Tongue Teeth Oesophagus Stomach Gallbladder Small intestine Pancreas Anus Rectum Large Intestine Liver Duodenum Tooth Canine Incisor</p>



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					<p>Construct your own food web that explains the relationship between all living things and discover who are the producers, consumers, predators and prey!</p> <p>Describe the simple functions of the basic parts of the digestive system in humans</p>	<p>Molar Premolars Producer Consumer</p>
	<p>Summer 1 & Summer 2</p>	<p>Which plants and animals thrive in our locality?</p>	<p>Use and make simple guides or keys to explore and identify local plants and animals;</p> <p>Make a guide on local living things;</p> <p>Raise and answer questions based on observations of animals and local living things, for example pond life, birds, insects</p> <p>-Comparing the effect of different factors on plant growth, for example the amount of light or the amount of fertiliser</p> <p>- Discovering how seeds are formed by observing the different stages of plant life cycles over a period of time;</p> <p>-Looking for patterns in the structure of fruits that relate to how the seeds are dispersed;</p> <p>Observe how water is transported in plants, for example by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.</p>	<p>Living things & their habitats (Y4 Unit) + Plants (Y3)</p> <p>National Curriculum Links:</p> <p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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</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</p>	<p>Recognise that living things can be grouped in a variety of ways by sorting living things into a range of groups.</p> <p>Group living things in a range of ways, such as flowering plants & non flowering plants; Vertebrate animals into groups such as fish, amphibians, reptiles, birds, mammals, and invertebrates into snails, slugs, worms, spiders and insects.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions by using a range of methods to sort and group living things.</p> <p>Generate questions to use in a classification key. Identifying differences, similarities or changes related to simple scientific ideas and processes by identifying vertebrates by their similarities and differences</p> <p>Identify vertebrates by observing their similarities and differences.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment by using keys to identify invertebrates found in the local environment</p>	<p>Plants Animals Flowering Non-flowering Environment Dangers Vertebrate Invertebrate Key Table Classification Locality Birds Insects Hunt Species Endangered Negative impacts Climate Change Littering Flowering Plants Roots Stem Trunk Leaves Flowers Function Nutrition Support Reproduction Air Light Water</p>



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				<p>pollination, seed formation and seed dispersal.</p>	<p>Create a classification key. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions by creating tables and keys showing the characteristics of living things</p> <p>Show the characteristics of living things in a table and a key.</p> <p>I can recognise positive and negative changes to the local environment and record observations in different ways.</p> <p>Describe environmental dangers to endangered species.</p> <p>Identify the different parts of flowering plants (roots, stem/trunk, leaves and flowers).</p> <p>Describe the functions of the different parts of a flowering plant.</p> <p>Explore how air is important to plants for life and growth and how it may vary from plant to plant.</p> <p>Explore how light is important to plants for life and growth and how it may vary from plant to plant.</p> <p>Explore how water is important to plants for life and growth and how it may vary from plant to plant.</p> <p>Explore how nutrients from soil are important to plants for life and growth and how they may vary from plant to plant.</p> <p>Explore how sufficient space is important to plants for life and growth and how it may vary from plant to plant.</p> <p>Investigate how water is transported within plants.</p>	<p>Pollination</p> <p>Seed Formation</p> <p>Seed</p> <p>Dispersal</p> <p>Bud</p> <p>Flowers</p> <p>Petals</p> <p>Blossom</p> <p>Bulb</p> <p>Seed</p> <p>Germination</p>
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					Explore the role of the flower in the life cycle of flowering plants.	
YEAR 5 & 6	Autumn 1	<p>Is there anybody out there?</p>	<p>Children could work scientifically by:</p> <ul style="list-style-type: none"> - Comparing the time of day at different places on the Earth through internet links and direct communication; - Creating simple models of the solar system - Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; - Finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks 	<p>Earth and Space, Y5 Unit National Curriculum Link:</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>Will we ever send another human to the moon?</p> <ul style="list-style-type: none"> • I can explain why we know the Sun, Earth and Moon are spherical. • I can name and describe features of the planets in our solar system • I can explain how planets move in our solar system. • I can explain day and night and the apparent movement of the Sun across the sky. 	<p>Sun Star Moon Planet Sphere Spherical bodies Satellite Orbit Rotate Axis Astronomer</p>
	Autumn 2	<p>Have we always looked like this?</p>	<p>Pupils should work scientifically by:</p> <ul style="list-style-type: none"> -Observing and raising questions about local animals and how they are adapted to their environment; -Comparing how some living things are adapted to survive in extreme conditions, for example cactuses, penguins & camels. 	<p>Evolution and inheritance (Y6 Unit) National Curriculum Link:</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. 	<ul style="list-style-type: none"> • I can explain the scientific concept of inheritance. • I can show how animals and plants have adapted to suit their environment. • I can explain how adaptations can result in both advantages and disadvantages. • I can identify the key ideas of the theory of evolution. 	<p>Adaptations Adaptive traits Characteristics Environment Fossil Habitat Inheritance Inherited traits Natural selection Offering Variations</p>



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			<p>-Analyse the advantages and disadvantages of specific adaptations such as being on two feet rather than four, having gills or lungs, brightly coloured or scented flowers.</p>	<ul style="list-style-type: none"> Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 		
Spring 1 & 2	<p>Why is the heart the most important pump we have?</p>	<p>Pupils should work scientifically by:</p> <ul style="list-style-type: none"> -Exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health 	<p>Animals including humans (Y6 Unit)</p> <p>National Curriculum Link:</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 	<ul style="list-style-type: none"> I can identify, name and describe the parts of the human circulatory system. I can explain water and nutrients are transported within the body. I can describe how diet and exercise impact on human bodies. I can explain the impact of drugs and alcohol on the body. I can plan a scientific enquiry. 	<p>Alcohol Alveoli Circulatory System Drug Gas exchange Heart Kidneys Liver Pulmonary Nutrients Villi</p>	



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				animals, including humans.		
Summer 1 & 2	Could you be the next Nintendo apprentice?	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> - Systematically identifying the effect of changing one component at a time in a circuit - Designing and making a set of traffic lights, a burglar alarm or some other useful circuit. 	<p>Electricity, Y6 Unit National Curriculum Link:</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 a cell. • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram. 	<p>Could you be the next Nintendo apprentice?</p> <ul style="list-style-type: none"> • I can explain the importance of the major discoveries in electricity. • I can recognise and draw scientific circuit symbols. • I can observe and explain the effects of differing voltages in a circuit. • I can plan, investigate and make a conclusion. 	<p>Amps Cell/battery Complete circuit Conductor Bright Bulb Buzzer Circuit Crocodile clips Current Diagram Dim Electromagnet Electrons Filament Fuse Insulator Mains Motor Parallel circuit Plug Resistance Switch Symbol Voltage</p>	