

# Progression in Science

		Year 1 and 2		Year 3 and 4		Year 5 and 6	
Working Scientifically	Questioning	Pupils should be taught to: <ul style="list-style-type: none"> <li>ask simple questions and recognise that they can be answered in different ways</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>ask relevant questions and use different types of scientific enquiries to answer them</li> <li>set up simple practical enquiries, comparative and fair tests</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> </ul>	
	Measuring & Recording	Pupils should be taught to: <ul style="list-style-type: none"> <li>observe closely, using simple equipment</li> <li>perform simple tests</li> <li>gather and record data to help in answering questions</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>gather, record, classify and present data in a variety of ways to help in answering questions</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul>	
	Concluding	Pupils should be taught to: <ul style="list-style-type: none"> <li>identify and classify</li> <li>use their observations and ideas to suggest answers to questions</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>use straightforward scientific evidence to answer questions or to support their findings</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>identify scientific evidence that has been used to support or refute ideas or arguments</li> <li>report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> </ul>	
	Evaluating			Pupils should be taught to: <ul style="list-style-type: none"> <li>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>		Pupils should be taught to: <ul style="list-style-type: none"> <li>use test results to make predictions to set up further comparative and fair tests</li> </ul>	
Plants		Pupils should be taught to: <ul style="list-style-type: none"> <li>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>identify and describe the basic structure of a variety of common flowering plants, including trees</li> </ul>	Pupils should be taught to: <ul style="list-style-type: none"> <li>observe and describe how seeds and bulbs grow into mature plants</li> <li>find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>	Pupils should be taught to: <ul style="list-style-type: none"> <li>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>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</li> <li>investigate the way in which water is transported within plants</li> <li>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>			

<p>Animals (including Humans)</p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>• identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• notice that animals, including humans, have offspring which grow into adults</li> <li>• find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the simple functions of the basic parts of the digestive system in humans</li> <li>• identify the different types of teeth in humans and their simple functions</li> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the changes as humans develop to old age</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>• describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>
<p>Living Things &amp; their habitats</p>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• explore and compare the difference between things that are living, dead, and things that have never been alive</li> <li>• identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other</li> <li>• identify and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>• 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</li> </ul>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>• recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• describe the life process of reproduction in some plants and animals</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• give reasons for classifying plants and animals based on specific characteristics</li> </ul>
<p>Light</p>			<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that they need light in order to see things and that the dark is the absence of light</li> <li>• notice that light is reflected from surfaces</li> <li>• recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>• recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>• find patterns in the way that the size of shadows changes</li> </ul>			<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that light appears to travel in straight lines</li> <li>• 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</li> <li>• 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</li> <li>• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul>
<p>Forces &amp; Magnets</p>			<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• compare how things move on different surfaces</li> <li>• notice that some forces need</li> </ul>			

			<p>contact between two objects, but magnetic forces can act at a distance</p> <ul style="list-style-type: none"> <li>• observe how magnets attract or repel each other and attract some materials and not others</li> <li>• compare and group together a variety of everyday materials on the basis on whether they are attracted to a magnet, and identify some magnetic materials</li> <li>• describe magnets as having two poles</li> <li>• predict whether two magnets will attract or repel each other, depending on which poles are facing</li> </ul>			
Seasonal Change	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• observe changes across the four seasons</li> <li>• observe and describe weather associated with the seasons and how day length varies</li> </ul>					
Materials (Properties & Changes)	<p>Everyday Materials</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• distinguish between an object and the material from which it is made</li> <li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• describe the simple physical properties of a variety of everyday materials</li> <li>• compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul>	<p>Uses of Everyday Materials</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>	<p>Rocks</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• recognise that soils are made from rocks and organic matter</li> </ul>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• 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</li> </ul>	
Evolution & Inheritance						<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that living things have</li> </ul>

						<p>changed over time and that fossils provide information about living things that inhabited the Earth</p> <p>millions of years ago</p> <ul style="list-style-type: none"> <li>• recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul>
States of Matter				<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• 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)</li> <li>• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>		
Earth & Space					<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the movement of the Earth, and other planets, relative to the Sun</li> <li>• describe the movement of the Moon relative to the Earth</li> <li>• describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>	
Sound				<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify how sounds are made, associating some of them with something vibrating</li> <li>• recognise that vibrations from sounds travel through a medium to the ear</li> <li>• find patterns between the pitch of a sound and features of the object that produced it</li> <li>• find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>• recognise that sounds get fainter as the distance from the sound source increases</li> </ul>		

Electricity				<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify common appliances that run on electricity</li> <li>• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>• 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</li> <li>• recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• 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</li> <li>• use recognised symbols when representing a simple circuit in a diagram</li> </ul>
	<b>Rotation 1</b>	<b>Rotation 2</b>	<b>Rotation 1</b>	<b>Rotation 2</b>	<b>Rotation 1</b>	<b>Rotation 2</b>
Autumn	<u>Seasonal Changes</u> (Autumn/Winter)  <u>Materials</u>	<u>Environment</u>  <u>Uses of Everyday Materials</u>	<u>Light</u>  <u>Rocks</u>	<u>Electricity</u>  <u>States of Matter</u>	<u>Earth &amp; Space</u>  <u>Living Things &amp; their habitats</u>	<u>Electricity</u>  <u>Evolution &amp; Inheritance</u>
Spring	<u>Animals</u> (Including Humans)  <u>Seasonal Changes</u> Spring Summer	<u>Animals</u> (Including Humans)  <u>Living Things &amp; their habitats</u>	<u>Animals</u> (Including Humans)  <u>Forces &amp; Magnets</u>	<u>Animals</u> (Including Humans)  <u>Living Things &amp; their habitats</u>	<u>Animals</u> (Including Humans)  <u>Forces</u>	<u>Animals</u> (Including Humans)  <u>Living Things &amp; their habitats</u>
Summer	<u>Plants</u>  <u>Scientists &amp; Inventors</u>	<u>Plants</u>  <u>Scientists &amp; Inventors</u>	<u>Plants</u>  <u>Scientists &amp; Inventors</u>	<u>Sound</u>  <u>Scientists &amp; Inventors</u>	<u>Properties &amp; Changes of Materials</u>  <u>Scientists &amp; Inventors</u>	<u>Light</u>  <u>Scientists &amp; Inventors</u>

Cycle One:	Year 1/2	Year 3/4	Year 5/6
<b>Autumn 1</b>	<p style="text-align: center;"><b>Seasonal Changes Autumn/Winter</b></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• name the four seasons</li> <li>• name different types of weather</li> <li>• make observations about the weather</li> <li>• describe the weather associated with each season</li> <li>• collect and record simple data</li> <li>• make simple observations about changes across the seasons.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• interpret simple data</li> <li>• name an event or occasion which happens in each season</li> <li>• describe how day length varies between two seasons</li> <li>• make a more detailed comparison between two seasons</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• interpret and identify patterns in simple data and begin to suggest explanations for this</li> <li>• explain seasonal changes across the four seasons</li> <li>• describe how day length varies across the four seasons</li> <li>• make comparison across the four seasons</li> </ul>	<p style="text-align: center;"><b>Light</b></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify light sources.</li> <li>• Understand that we need light to see.</li> <li>• Know that light travels in a straight line.</li> <li>• Identify reflective surfaces.</li> <li>• Know that the Sun can damage their eyes.</li> <li>• Know how to protect their eyes from the Sun.</li> <li>• Understand that a shadow is formed when a solid object blocks light.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Understand that dark is the absence of light.</li> <li>• Set up an investigation and make predictions.</li> <li>• Understand how surfaces reflect light.</li> <li>• Recognise that a mirror appears to reverse an image.</li> <li>• Identify some parts of the eye.</li> <li>• Understand how the Sun can damage parts of the eye.</li> <li>• Identify opaque, translucent and transparent objects.</li> <li>• Know how shadows change size.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the properties of materials that reflect light well.</li> <li>• Understand why shadows change size.</li> <li>• Set up reliable and accurate investigations.</li> <li>• Make and explain predictions.</li> <li>• Make and record accurate observations.</li> <li>• Use scientific language to explain their findings.</li> <li>• Be able to ask and answer questions based on their learning using scientific language.</li> </ul>	<p style="text-align: center;"><b>Earth and Space</b></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Describe a sphere.</li> <li>• Identify scientific evidence with support.</li> <li>• Name the planets in the solar system with support.</li> <li>• Explain how the planets orbit the Sun.</li> <li>• Explain how night and day occur.</li> <li>• Make predictions about night and day in different places on Earth.</li> <li>• Report and present findings from enquiries with support.</li> <li>• Explain that the Moon orbits the Earth not the Sun</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Describe the Sun, Earth and Moon as spherical.</li> <li>• Name the planets in the solar system independently.</li> <li>• Distinguish between heliocentric and geocentric ideas of planetary movement.</li> <li>• Explain that day and night is due to rotation of the Earth.</li> <li>• Support the idea that different places on Earth experience night and day at different times with evidence.</li> <li>• Report and present findings from enquiries.</li> <li>• Explain how the Moon moves relative to the Earth.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Name at least two different shapes the Earth was thought to be.</li> <li>• Identify scientific evidence that has been used to support or refute ideas.</li> <li>• Describe some features of the planets.</li> <li>• Place the planets in the solar system in the correct order.</li> <li>• Explain theories of planetary movement in the solar system using evidence.</li> <li>• Explain using evidence how night and day occur.</li> <li>• Explain why night and day occur at different times in different places on Earth.</li> <li>• Write a conclusion which explains my findings.</li> <li>• Explain how the Earth and Moon move relative to the Sun.</li> </ul>
<b>Autumn 2</b>	<p style="text-align: center;"><b>Materials</b></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify and name everyday materials.</li> <li>• Describe simple properties of everyday materials.</li> <li>• To observe closely.</li> <li>• Sort objects 2 ways.</li> </ul> <p>Most: children will be able to:</p>	<p style="text-align: center;"><b>Rocks</b></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Children will be able to name the three different types of rocks.</li> <li>• They will handle and examine rocks to identify their properties, with support.</li> <li>• They will be able to state the four different types of matter that soil is composed of.</li> </ul>	<p style="text-align: center;"><b>Properties and changes of materials</b></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify materials.</li> <li>• Describe materials' properties.</li> <li>• Identify thermal and electrical conductors and insulators.</li> <li>• Identify materials that are soluble or insoluble in water.</li> <li>• Follow instructions to separate mixtures.</li> <li>• Identify irreversible changes.</li> </ul>

	<ul style="list-style-type: none"> <li>• Distinguish between an object and the material it is made from.</li> <li>• Make a prediction.</li> <li>• Perform simple tests.</li> <li>• Use their observations to answer simple questions. • Sort objects 3 ways.</li> </ul> <p>Some: Describe and compare the properties of everyday materials.</p> <ul style="list-style-type: none"> <li>• Make a prediction and suggest a reason.</li> <li>• Suggest how a simple test could be made fair.</li> <li>• Use their observations, ideas and experiences to ask and answer simple questions.</li> <li>• Explain an outcome and suggest reasons for it.</li> </ul>	<ul style="list-style-type: none"> <li>• Children will learn to make careful observations.</li> <li>• They will be able to take part in and contribute towards an oral presentation of their observations.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Children will be able to give examples of natural and human-made rocks.</li> <li>• They will be able to group rocks by their properties and identify simple similarities and differences.</li> <li>• Children will be able to explain the difference between a bone and a fossil.</li> <li>• They will be able to explain, using simple scientific language, how soil is formed.</li> <li>• They will make and record observations accurately.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Children will make systematic observations.</li> <li>• They will be able to explain the main processes of fossilisation.</li> <li>• They will be able to identify the importance of Mary Anning's work to the field of palaeontology.</li> <li>• Children will use simple scientific language accurately in oral and written work.</li> </ul>	<ul style="list-style-type: none"> <li>• Predict what will happen in an investigation. • Make observations</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Follow instructions to test a material's properties.</li> <li>• Explain the uses of thermal and electrical conductors and insulators.</li> <li>• Order materials according to their electrical conductivity.</li> <li>• Explain and investigate dissolving.</li> <li>• Explain the processes used to separate mixtures.</li> <li>• Explain irreversible changes.</li> <li>• Identify the variables in an investigation.</li> <li>• Make observations and conclusions.</li> <li>• Be able to answer questions based on their learning</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Devise their own ways to test a material's properties.</li> <li>• Explain the uses of a material according to its properties.</li> <li>• Explain why materials have dissolved in certain conditions.</li> <li>• Select and explain the most suitable processes to separate different mixtures.</li> <li>• Identify the new materials made in irreversible changes.</li> <li>• Identify dependent, independent and controlled variables.</li> <li>• Set up reliable and accurate investigations.</li> <li>• Make and explain predictions.</li> <li>• Make and record accurate observations.</li> <li>• Use scientific language to explain their findings.</li> <li>• Use their results to make generalisations and further predictions.</li> <li>• Be able to ask and answer questions based on their learning using scientific language</li> </ul>
<p><b>Spring 1</b></p>	<p>Seasonal changes Spring/summer</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Name the four seasons.</li> <li>• Name different types of weather.</li> <li>• Make observations about the weather.</li> <li>• Describe the weather associated with each season.</li> <li>• Collect and record simple data.</li> <li>• Make simple observations about changes across the seasons.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Interpret simple data.</li> <li>• Name an event or occasion which happens in each season.</li> <li>• Describe how day length varies between two seasons.</li> <li>• Make a more detailed comparison between two seasons.</li> </ul> <p>Some children will be able to:</p> <p>Interpret and identify patterns in simple data and begin to suggest explanations for this.</p> <ul style="list-style-type: none"> <li>• Explain seasonal changes across the four seasons.</li> <li>• Describe how day length varies across the four seasons.</li> </ul>	<p>Forces and magnets</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify forces as pushes and pulls.</li> <li>• Describe friction as a force that slows objects down.</li> <li>• Feel the pulling force of a magnet.</li> <li>• Sort materials according to whether they are magnetic or not.</li> <li>• Participate in an investigation into magnet strength.</li> <li>• Identify the different poles of a bar magnet.</li> <li>• Use a magnetic compass with four points.</li> <li>• Make a prediction.</li> <li>• Construct a bar chart on labelled axes.</li> <li>• Form a conclusion from their results.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Identify the type of force required to carry out an action.</li> <li>• Investigate the force of friction produced by different surfaces.</li> <li>• Explain that magnets produce an invisible pulling force.</li> <li>• Identify magnetic materials.</li> <li>• Identify different types of magnet.</li> </ul>	<p>Forces</p> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• identify and explain the different forces acting on objects;</li> <li>• explain Newton's role in discovering gravity; • accurately measure an object's weight and mass;</li> <li>• explain how to increase the effects of air resistance;</li> <li>• explain Galileo's 'Tower of Pisa' experiment into gravity and air resistance;</li> <li>• identify streamlined shapes;</li> <li>• explain how friction is used in brake pads;</li> <li>• investigate the effects of friction;</li> <li>• explain how different mechanisms work;</li> <li>• design their own mechanism to achieve a given purpose;</li> <li>• identify the variables in an investigation;</li> <li>• make observations and conclusions;</li> <li>• be able to answer questions based on their learning.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• identify and explain balanced and unbalanced forces;</li> <li>• explain the difference between weight and mass;</li> <li>• explain the link between the weight and mass of an object;</li> </ul>

	<ul style="list-style-type: none"> <li>• Make comparison across the four seasons.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate the strength of different magnets.</li> <li>• Identify when magnets will repel or attract based on their poles.</li> <li>• Construct a bar chart of their results.</li> <li>• Explain their predictions and conclusions using key words or prompts.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Make generalisations about the types of surfaces that produce the most or least friction.</li> <li>• Identify and describe the invisible magnetic field around a magnet.</li> <li>• Make generalisations about the types of materials that are attracted to magnets.</li> <li>• Use a magnetic compass with 8 points.</li> <li>• Construct a bar chart of their results.</li> <li>• Explain their predictions and conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>• make generalisations about how to increase the effects of air resistance;</li> <li>• explain the conclusions and implications of Galileo's 'Tower of Pisa' experiment;</li> <li>• explain how to minimise the effects of water resistance;</li> <li>• make generalisations about the properties of materials that create the most friction;</li> <li>• explain how a mechanism they have designed alters force and motion to achieve a purpose;</li> <li>• identify dependent, independent and controlled variables;</li> <li>• set up reliable and accurate investigations;</li> <li>• make and explain predictions;</li> <li>• make and record accurate observations;</li> <li>• use scientific language to explain their findings;</li> <li>• use their results to make generalisations and further predictions;</li> <li>• be able to ask and answer questions based on their learning using scientific language.</li> </ul> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• identify forces as pushes and pulls;</li> <li>• explain gravity as a force that pulls objects down;</li> <li>• identify Isaac Newton's discoveries;</li> <li>• explain the effects of friction, including air and water resistance, on moving objects;</li> <li>• identify different mechanisms;</li> <li>• recognise that there are different variables in an investigation;</li> <li>• predict what will happen in an investigation;</li> </ul>
<p><b>Spring 2</b></p>	<p style="text-align: center;">Plants</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Plant a bean.</li> <li>• Find plants in the wild and identify them by a picture.</li> <li>• Say the names of parts of trees.</li> <li>• Describe a bean plant using words from a word bank.</li> <li>• Say three things that plants need to grow.</li> <li>• Match leaves they have collected to pictures of a leaf</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Write instructions to describe how to plant a bean.</li> <li>• Identify some garden plants that they see in photographs.</li> <li>• Name some garden plants from memory.</li> <li>• Identify some common plants in the wild.</li> <li>• Label the parts of a plant.</li> <li>• Sort leaves into groups of deciduous and evergreen.</li> </ul> <p>Collect information on a Wild Plant Hunt.</p> <ul style="list-style-type: none"> <li>• Generate questions about plants.</li> <li>• Measure the growth of a bean plant with a ruler.</li> <li>• Use their observations to give reasons for their answers to questions.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Describe the difference between deciduous and evergreen.</li> </ul>	<p style="text-align: center;">Plants</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify the different parts of flowering plants.</li> <li>• Predict what will happen in an investigation.</li> <li>• Make observations.</li> <li>• Identify the main stages of the life cycle of flowering plants.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the functions of the different parts of plants.</li> <li>• Set up an investigation and make predictions.</li> <li>• Make observations and conclusions.</li> <li>• Identify different parts of a flower.</li> </ul> <ul style="list-style-type: none"> <li>• Identify and describe the stages of the life cycle of flowering plants.</li> <li>• Be able to answer questions based on their learning.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Set up reliable and accurate investigations.</li> <li>• Make and explain predictions.</li> <li>• Make and record accurate observations.</li> <li>• Use scientific language to explain their findings.</li> <li>• Explain the functions of the different parts of a flower.</li> </ul>	<p style="text-align: center;">Living Things and Their Habitats</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify parts of a flower.</li> <li>• Give one difference between sexual and asexual reproduction.</li> <li>• Describe ways plants can be pollinated.</li> <li>• Identify plants that reproduce asexually.</li> <li>• Describe ways to grow new plants other than from seed.</li> <li>• Identify the stages in the process of sexual reproduction.</li> <li>• Identify different types of mammals.</li> <li>• Give three facts about Jane Goodall.</li> <li>• Describe threats faced by chimpanzees.</li> <li>• Identify familiar animals that undergo metamorphosis.</li> <li>• Order the stages of the life cycles of mammals, birds, insects and amphibians.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the function of the parts of a flower.</li> <li>• Give two differences between sexual and asexual reproduction.</li> <li>• Identify the features of plants pollinated by insects or the wind.</li> <li>• Describe the stages of sexual reproduction.</li> <li>• Describe the differences between the three types of mammals.</li> </ul>

	<ul style="list-style-type: none"> <li>• Use information they have gathered to answer a question.</li> <li>• Suggest a way to answer a question using the equipment that has been provided.</li> </ul>	<ul style="list-style-type: none"> <li>• Be able to ask and answer questions based on their learning using scientific language.</li> </ul>	<ul style="list-style-type: none"> <li>• Give four facts about Jane Goodall.</li> <li>• Describe the stages of the life cycles of mammals, birds, insects and amphibians.</li> <li>• Identify similarities and differences between the life cycles of different plants and animals.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Give two advantages and two disadvantages of sexual and asexual reproduction.</li> <li>• Explain how a plant's features are adapted to pollination by insect or wind.</li> <li>• Explain that plants that reproduce asexually are genetically identical to the parent plant.</li> <li>• Explain the classification of different mammals.</li> <li>• Give five facts about Jane Goodall.</li> <li>• Explain how the threats faced by chimpanzees could lead to the extinction of the species.</li> <li>• Compare the stages of the life cycles of plants, mammals, birds, insects and amphibians.</li> </ul>
<p><b>Summer 1</b></p>	<p style="text-align: center;">Animals including humans</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• name the basic parts of the body;</li> <li>• name the senses and say which body part is associated with each sense;</li> <li>• identify and name a range of common animals;</li> <li>• describe the structure of common animals, including some parts of the body that are specific to animals;</li> <li>• say something that is the same and something that is different about two animals;</li> <li>• understand that animals have different diets;</li> <li>• use their senses to perform simple tests.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• draw and label parts of their body;</li> <li>• describe activities that use each of the five senses;</li> <li>• sort animals into simple groups, including groups based on animal diets;</li> <li>• describe animal bodies using relevant vocabulary;</li> <li>• understand the difference between carnivores, herbivores and omnivore;</li> <li>• identify and classify animals by suggesting groups that they belong to;</li> <li>• gather and record information and use it to answer a puzzle.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• label more parts of the human body;</li> <li>• sort animals into Venn Diagrams;</li> <li>• remember the five main groups of animals and give examples for each one;</li> <li>• remember the words for carnivore, herbivore and omnivore and give examples for each;</li> </ul>	<p style="text-align: center;">Animals including humans</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Understand that plants and animals obtain food in different ways.</li> <li>• Identify the right types and demonstrate they understand the right amounts of nutrients for animals including humans.</li> <li>• Name the different types of skeletons as well as identify and categorise animals based on the type of skeleton it has.</li> <li>• Identify the main bones in the body and how a skeleton protects, supports and helps the body to move.</li> <li>• Explain how pairs of muscles work together to enable movement.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the different ways that plants and animals including humans obtain food.</li> <li>• Explain the difference between food groups and nutrient groups.</li> <li>• Explain what the right type and amounts of nutrition are for human beings as well as some of the consequences related to eating the wrong type of diet.</li> <li>• Use the scientific names for the main bones in the human body and explain how the skeleton protects, supports and helps the body to move.</li> <li>• Set up a simple practical enquiry and write an explanation for their findings.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain why humans need some types of nutrients.</li> <li>• Identify the similarities and differences between animals based on their diets.</li> <li>• Identify the pros and cons of different types of skeletons and explain how the different parts of a skeleton work.</li> </ul>	<p style="text-align: center;">Animals including humans</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Compare and present data using bar and line graphs.</li> <li>• Report findings in oral form.</li> <li>• Order the stages of human development.</li> <li>• Demonstrate understanding of how babies grow in height.</li> <li>• Describe the main changes that occur during puberty.</li> <li>• Explain the main changes that take place in old age.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Compare graph types and select which is most appropriate for my data.</li> <li>• Analyse and report findings in written explanations.</li> <li>• Name the 6 stages of human development.</li> <li>• Give reasons why changes occur during puberty.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the changes that occur during stages of human development.</li> <li>• Demonstrate understanding of how babies grow in height and weight.</li> <li>• Analyse the similarities and differences between how boys and girls experience puberty.</li> </ul>

	<ul style="list-style-type: none"> <li>• generate their own questions to when sorting animals into groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Extend their knowledge by identifying the main bones in the skeleton of animals other than humans.</li> <li>• Make modifications to their practical enquiry while conducting it and be able to write a conclusion that links their findings to support or refute general scientific ideas.</li> </ul>	
<p><b>Summer 2</b></p>	<p style="text-align: center;">Scientists and inventors</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• observe and describe 4 properties of plastic;</li> <li>• identify common zoo animals;</li> <li>• sort animals into 3 groups based on their body parts; • name 4 sensory plants;</li> <li>• choose their favourite sensory plant from a selection;</li> <li>• observe and describe the local weather;</li> <li>• identify common pets;</li> <li>• describe how vets look after animals;</li> <li>• take part in an investigation to find out the best materials to keep us warm.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• identify the material that Lego is made out of;</li> <li>• observe and describe properties of plastic;</li> <li>• sort animals into 4 groups based on their body parts; • name 6 sensory plants;</li> <li>• add information to a pictogram to show their favourite plant;</li> <li>• make a rain gauge and use it to measure rainfall;</li> <li>• record rainfall data;</li> <li>• identify which materials will keep us warm</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• observe and describe 6 properties of plastic;</li> <li>• give reasons why Lego is made from plastic, referring to its properties;</li> <li>• sort animals into 5 groups based on their body parts; • name 8 sensory plants;</li> <li>• use a pictogram to find their class' favourite plants; • use rainfall data to answer questions;</li> <li>• use a thermometer to take temperatures;</li> <li>• describe some properties of materials that keep us warm.</li> </ul>	<p style="text-align: center;">Scientists and inventors</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• find plants in the local area;</li> <li>• give the names of four people who brought new plants to Britain;</li> <li>• design a new plant and answer questions about it;</li> <li>• give four facts about Marie Curie's life and work;</li> <li>• identify bones in x-ray images;</li> <li>• identify what plants need to grow well;</li> <li>• explain how scientists use fossils to date rocks today;</li> <li>• describe how William Smith found fossils;</li> <li>• match fossils to time periods;</li> <li>• give four facts about Inge Lehmann's life and work; • describe the Earth's core as solid iron; • explain how igneous rocks are made;</li> <li>• identify concave and convex mirrors as curved mirrors;</li> <li>• participate in an investigation into convex and concave mirrors;</li> <li>• identify devices and inventions that use curved mirrors; • describe electromagnets as magnets powered by electricity;</li> <li>• describe how the first electromagnets were developed and name a scientist who worked on them;</li> <li>• recognise that inventions and discoveries come from all over the world;</li> <li>• give an example of how some things are invented to make people's lives easier.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• identify familiar plants in the local area;</li> <li>• match facts to the names of four people who brought plants to Britain;</li> <li>• design their own new plant and use prompts to explain its requirements for growth;</li> <li>• give five facts about Marie Curie's life and work and use prompts to describe her legacy;</li> <li>• describe how Marie Curie used x-rays;</li> <li>• use prompts to explain the function of bones shown in x-ray images;</li> <li>• explain crop rotation;</li> <li>• give five facts about William Smith's life and work;</li> <li>• explain how he found fossils in the same order in the rocks he studied;</li> <li>• use a key to identify fossils and time periods; • give five facts about Inge Lehmann's life and work;</li> <li>• describe how Inge Lehmann used earthquake waves to research the Earth's core;</li> <li>• identify convex and concave mirrors;</li> </ul>	<p style="text-align: center;">Scientists and inventors</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• answer questions about David Attenborough's life and work;</li> <li>• research and present facts about living things, including diet and habitat;</li> <li>• identify different types of evidence;</li> <li>• describe Margaret Hamilton's work on programming the on-board computer for the Apollo 11 spacecraft;</li> <li>• list the planets in our solar system;</li> <li>• describe Leonardo da Vinci's life and his famous work;</li> <li>• carry out an inquiry to test the accuracy of Leonardo da Vinci's ideas about proportion;</li> <li>• order facts about Eva Crane's life and work;</li> <li>• group and rank materials based on their hardness and weight;</li> <li>• describe the theory that Stonehenge could have been used as an astronomical calendar.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• explain whether evidence supports or refutes ideas;</li> <li>• use chromatography to separate mixtures;</li> <li>• identify a mixture by analysing its components;</li> <li>• explain how Margaret Hamilton's software inventions changed the way computer programmes were used;</li> <li>• explain Neil deGrasse Tyson's ideas about Pluto;</li> <li>• identify the largest and smallest planets in our solar system;</li> <li>• record their results accurately and explain what they show;</li> <li>• use their results to make new predictions;</li> <li>• describe the life cycle of bees;</li> <li>• order facts about Stephanie Kwolek's life;</li> <li>• identify evidence that supports or refutes the idea that Stonehenge was used as an astronomical calendar;</li> <li>• explain their own theories and ideas.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• research and present information about how living things are adapted to their habitat, and the characteristics and features that help them;</li> <li>• identify uses for Kevlar;</li> <li>• develop their own calculations to check the accuracy of Leonardo da Vinci's ideas about proportion;</li> <li>• describe evidence that supports their own idea and theories.</li> </ul>

		<ul style="list-style-type: none"> <li>• develop their own question to investigate convex and concave mirrors;</li> <li>• identify which devices and inventions use convex mirrors and which use concave mirrors; • explain how electromagnets are made;</li> <li>• describe how the first electromagnets were developed and name two scientists who worked on them;</li> <li>• research an invention and find out more about where and why it was invented.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• use a guide to identify unfamiliar plants in the local area;</li> <li>• give facts about four people who brought new plants to Britain;</li> <li>• design their own new plant and explain its requirements for growth;</li> <li>• give six facts about Marie Curie's life and work and explain her legacy;</li> <li>• explain how Marie Curie developed x-rays;</li> <li>• explain the function of bones in x-ray images; • describe George Washington Carver's contribution to farming;</li> <li>• give six facts about William Smith's life and work;</li> <li>• explain William Smith's principle of fossil succession;</li> <li>• give six facts about Inge Lehmann's life and work;</li> <li>• explain how Inge Lehmann used the fact that earthquake waves travel at different speeds through different materials to research the earth's core;</li> <li>• explain how heat from the earth's core creates igneous rocks; • explain how concave and convex mirrors reflect light differently to create different images;</li> <li>• explain their prediction and conclusion in an investigation into concave and convex mirrors; • explain why concave or convex mirrors have been used in particular devices or inventions;</li> <li>• make their own electromagnet;</li> <li>• describe in their own words how the first electromagnets were developed and name three scientists who worked on them;</li> <li>• make links between where something was invented and why.</li> </ul>	
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Cycle two:	Year 1/2	Year 3/4	Year 5/6
Autumn 1	<p style="text-align: center;"><u>Environment</u></p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Set up a simple test.</li> <li>• Measure and record the time taken for ice to melt.</li> <li>• Sort objects into groups.</li> <li>• Generate questions about the rainforest.</li> <li>• Sort rainforest animals into groups.</li> <li>• Ask questions about endangered animals.</li> </ul>	<p style="text-align: center;">Electricity</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• They will learn to identify electrical and nonelectrical appliances.</li> <li>• They will be able to explain, with support, how a circuit works.</li> <li>• Children will be able to name at least two electrical conductors and insulators.</li> </ul>	<p style="text-align: center;">Electricity</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• know the main circuit symbols and use these to draw circuit diagrams;</li> <li>• be able to plan and conduct an investigation;</li> <li>• plan an investigation based on the results of a previous investigation;</li> <li>• decide how to record data</li> </ul>

	<p>Most children should be able to:</p> <ul style="list-style-type: none"> <li>• Compare two different measurements.</li> <li>• Draw a simple conclusion from the results of a test.</li> </ul> <p>Identify the material of an object.</p> <ul style="list-style-type: none"> <li>• Suggest ways to reduce, reuse and recycle.</li> <li>• Take a survey using a tally.</li> <li>• Think of a way to teach people to use less energy.</li> <li>• Communicate ideas to other people.</li> <li>• Use different sources to find out answers to questions.</li> <li>• Label the animal groups.</li> <li>• Measure an amount of water in ml.</li> <li>• Record the amount of water measured.</li> <li>• Answer questions about an animal they have researched.</li> </ul> <p>Some children will be able to:</p> <p>Use the results of the survey to answer a question.</p> <ul style="list-style-type: none"> <li>• Draw a more detailed conclusion from the results of a test.</li> </ul>	<ul style="list-style-type: none"> <li>• They will be able to create a simple series circuit both with and without a switch.</li> <li>• They will be able to accurately record their findings in a table.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Sort appliances based on whether they use mains or batteries.</li> <li>• They will be able to explain how a switch turns the electric current on and off.</li> <li>• Children will be able to report their findings and conclusions orally.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain why a circuit is incomplete.</li> <li>• Generalise about types of materials that conduct electricity.</li> <li>• Explain the conclusions they draw in investigations.</li> </ul>	<p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• explain how our understanding of electricity has changed over time;</li> <li>• draw circuit diagrams using the correct symbols and label the voltage correctly;</li> <li>• decide which variables to control while planning an investigation;</li> <li>• decide how to report their findings;</li> <li>• make new predictions based on the previous results;</li> <li>• select an appropriate scientific enquiry.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• explain how major discoveries led to the widespread use of electricity;</li> <li>• explain the effect of increasing or decreasing the voltage on different parts of a circuit;</li> <li>• explain how they have ensured a high degree of trust in their results;</li> <li>• identify variations in component function.</li> </ul>
<p><b>Autumn 2</b></p>	<p style="text-align: center;">Use of everyday materials</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify and name everyday materials.</li> <li>• Identify different uses of everyday materials.</li> <li>• Record their observations.</li> <li>• Demonstrate and explain how shapes of objects made from some materials can be changed.</li> <li>• Explain what recycling means.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Compare the uses of different everyday materials.</li> <li>• Compare the suitability of different everyday materials.</li> <li>• Explain the basic progress of recycling.</li> <li>• Explain the advantages of recycling.</li> <li>• Name the process invented by John McAdam.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Classify the uses of different everyday materials.</li> <li>• Compare and explain the suitability of everyday materials in different circumstances.</li> <li>• Use their observations, ideas and experiences to ask and answer simple questions.</li> <li>• Suggest reasons for specific outcomes.</li> <li>• Explain how recycling impacts positively on the environment.</li> <li>• Explain how the inventions and discoveries of others have impacted on our lives today</li> </ul>	<p style="text-align: center;">States of matter</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Sort materials into solids, liquids and gases.</li> <li>• Explain that heating causes melting, and cooling causes freezing.</li> <li>• Identify the melting and freezing point of water.</li> <li>• Describe evaporation and condensation using practical examples.</li> <li>• Describe the effect of temperature on evaporation referring to their investigation.</li> <li>• Identify the stages of the water cycle.</li> <li>• Predict what will happen in an investigation.</li> <li>• Make observations.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Describe the properties of solids, liquids and gases.</li> <li>• Explain that melting and freezing are opposite processes that change the state of a material.</li> <li>• Identify the melting and freezing point of several different materials.</li> <li>• Explain that heating causes evaporation and cooling causes condensation.</li> <li>• Explain that evaporation and condensation are opposite processes that change the state of a material.</li> <li>• Explain that the higher the temperature, the quicker water evaporates.</li> <li>• Explain what happens to water at the different stages of the water cycle.</li> <li>• Make observations and conclusions.</li> <li>• Be able to answer questions based on their learning.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the behaviour of the particles in solids, liquids and gases.</li> </ul>	<p style="text-align: center;">Evolution and inheritance</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify inherited traits and adaptive traits.</li> <li>• Understand that adaptations are random mutations.</li> <li>• Examine fossil evidence supporting the idea of evolution.</li> <li>• Identify the difference between selective and cross-breeding.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Develop an understanding of the development of evolutionary ideas and theories over time.</li> <li>• Explain how human evolution has occurred and compare modern humans with those of the same genus and family.</li> <li>• Understand that adaptation and evolution is not a uniform process for all living things.</li> <li>• Give examples of selective and crossbreeding.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the terms adaptation, evolution and natural selection and use these in context.</li> <li>• Describe how living things evolve via the process of natural selection.</li> <li>• Explain in simple terms what genes and DNA are.</li> <li>• Investigate the ethical issues of human intervention in the process of evolution by natural selection.</li> </ul>

		<ul style="list-style-type: none"> <li>• Explain how heating and cooling causes materials to melt and freeze.</li> <li>• Explain why a material's melting and freezing point is the same temperature.</li> <li>• Explain how heating and cooling can cause materials to evaporate and condense.</li> <li>• Explain why a higher temperature will speed up evaporation.</li> <li>• Use the water cycle to explain why the water we have on Earth today is the same water that has been here for millions of years.</li> <li>• Set up reliable and accurate investigations.</li> <li>• Make and explain predictions.</li> <li>• Make and record accurate observations.</li> <li>• Use scientific language to explain their findings.</li> <li>• Be able to ask and answer questions based on their learning using scientific language.</li> </ul>	
<p><b>Spring 1</b></p>	<p style="text-align: center;">Animals including humans</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Say which animal some babies will grow into.</li> <li>• Name some animal babies.</li> <li>• Say the three things that humans need, to stay alive.</li> </ul> <p>Generate questions about a pet they have chosen.</p> <ul style="list-style-type: none"> <li>• Give examples of healthy and less healthy food.</li> <li>• Name some things that humans do to keep themselves clean.</li> <li>• Use a magnifying glass or microscope to look closely at their hands.</li> <li>• Attempt to record what they see.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Say how an animal will change as it grows.</li> <li>• Draw an animal as a baby and then as an adult.</li> <li>• Name the different stages in the human timeline.</li> <li>• Set up a simple test.</li> <li>• Collect and interpret results.</li> <li>• Say how an animal gets air, food and water.</li> <li>• Research the answer to a question.</li> <li>• Say what is healthy about their diet.</li> <li>• Say how they could improve their diet.</li> <li>• Give a reason why humans need to exercise.</li> <li>• Name one effect that exercise has on the human body.</li> <li>• Record information about exercise.</li> <li>• Use information to answer questions.</li> <li>• Give reasons why humans should keep themselves clean.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Describe what humans are like during the different stages of their lives.</li> <li>• Design a menu that has the right amount of each different food type.</li> </ul>	<p style="text-align: center;">Animals including humans</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Generate questions and use scientific evidence that is given to answer questions.</li> <li>• Identify similarities related to scientific ideas.</li> <li>• Set up a simple enquiry with support.</li> <li>• Make observations, record findings and use results to draw simple conclusions.</li> <li>• Name parts of the digestive system.</li> <li>• Add functions to the parts of the digestive system.</li> <li>• Identify the function of teeth in humans.</li> <li>• Construct a simple food chain.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Generate relevant scientific questions.</li> <li>• Identify differences related to scientific ideas.</li> <li>• Make predictions and suggest equipment.</li> <li>• Make careful observations, record findings using labelled diagrams and use results to make predictions for new values.</li> <li>• Identify parts of the digestive system.</li> <li>• Match the parts of the digestive system with their functions.</li> <li>• Match the types and functions of teeth.</li> <li>• Construct and interpret a food chain.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Distinguish between scientific and non-scientific evidence and select the best type of enquiry to answer a question.</li> <li>• Identify similarities and differences related to scientific ideas.</li> <li>• Give clear instructions to perform an enquiry.</li> <li>• Make systematic observations, record using scientific vocabulary and raise further questions based on their results.</li> <li>• Construct the digestive system.</li> <li>• Explain the functions of the digestive system.</li> <li>• Identify the types and functions of teeth.</li> </ul>	<p style="text-align: center;">Animals including humans</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify the main parts of the circulatory system.</li> <li>• Explain the main functions of the heart, lungs and blood vessels in the circulatory system.</li> <li>• State how the digestive system breaks down nutrients.</li> <li>• Explain what constitutes a healthy lifestyle.</li> <li>• Describe how drugs and alcohol can impact negatively on the body.</li> <li>• Take accurate measures of the pulse rate.</li> <li>• Record results and write a report which includes a conclusion.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate prior knowledge of systems within the human body.</li> <li>• Explain the specific functions of the lungs in the circulatory system.</li> <li>• Understand the processes of how water and nutrients are transported in the body.</li> <li>• State the beneficial impact of a healthy diet and exercise on the human body.</li> <li>• Describe how smoking cigarettes impacts negatively on the body.</li> <li>• Decide on the most appropriate type of investigation for their question.</li> <li>• Take repeat readings if necessary.</li> <li>• Report the degree of trust they have in their results.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Name the organs, the main parts of those organs and the functions of each in the circulatory system.</li> <li>• Identify and explain the processes which break down food into nutrients.</li> <li>• Understand how the circulatory and digestive system connect to transport water and nutrients throughout the body.</li> <li>• Identify and explain the variables they will control in an investigation.</li> </ul>

		<ul style="list-style-type: none"> <li>• Construct and interpret a variety of food chains</li> </ul>	<ul style="list-style-type: none"> <li>• Choose the most appropriate graph to present their data.</li> <li>• Explain how scientific evidence has changed ideas about smoking.</li> </ul>
<b>Spring 2</b>	<p>Living things and their habitats</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Say what is different about things that are living, dead or have never been alive.</li> <li>• Identify some of the plants and animals in a familiar habitat.</li> <li>• Sort objects into categories.</li> <li>• Find microhabitats.</li> <li>• Describe the conditions in a habitat.</li> <li>• Ask questions about different habitats.</li> <li>• Describe the characteristics of some plants and animals.</li> <li>• Name some sources of food.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain some of the life processes.</li> <li>• Ask questions to decide if a thing is living, dead or has never been alive.</li> <li>• Identify some plants and animals in global habitats.</li> <li>• Draw a map of a local habitat.</li> <li>• Sort objects into categories and give reasons for their choices.</li> <li>• Identify and name minibeasts in microhabitats.</li> <li>• Gather and record information.</li> <li>• Suggest how an animal is able to survive in their habitat.</li> <li>• Answer questions about habitats they have researched.</li> <li>• Explain why the animals in a habitat need the plants.</li> <li>• Draw a simple food chain.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Identify a variety of plants and animals in a range of habitats.</li> <li>• Choose their own objects to go into given categories.</li> <li>• Use information they have gathered to suggest an answer to a question.</li> <li>• Suggest why the plants in a habitat need the animals.</li> </ul>	<p>Living things and their habitats</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Identify parts of a flower.</li> <li>• Give one difference between sexual and asexual reproduction.</li> <li>• Describe ways plants can be pollinated.</li> <li>• Identify plants that reproduce asexually.</li> <li>• Describe ways to grow new plants other than from seed.</li> <li>• Identify the stages in the process of sexual reproduction.</li> <li>• Identify different types of mammals.</li> <li>• Give three facts about Jane Goodall.</li> <li>• Describe threats faced by chimpanzees.</li> <li>• Identify familiar animals that undergo metamorphosis.</li> <li>• Order the stages of the life cycles of mammals, birds, insects and amphibians.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain the function of the parts of a flower.</li> <li>• Give two differences between sexual and asexual reproduction.</li> <li>• Identify the features of plants pollinated by insects or the wind.</li> <li>• Describe the stages of sexual reproduction.</li> <li>• Describe the differences between the three types of mammals.</li> <li>• Give four facts about Jane Goodall.</li> <li>• Describe the stages of the life cycles of mammals, birds, insects and amphibians.</li> <li>• Identify similarities and differences between the life cycles of different plants and animals.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Give two advantages and two disadvantages of sexual and asexual reproduction.</li> <li>• Explain how a plant's features are adapted to pollination by insect or wind.</li> <li>• Explain that plants that reproduce asexually are genetically identical to the parent plant.</li> <li>• Explain the classification of different mammals.</li> <li>• Give five facts about Jane Goodall.</li> <li>• Explain how the threats faced by chimpanzees could lead to the extinction of the species.</li> <li>• Compare the stages of the life cycles of plants, mammals, birds, insects and amphibians.</li> </ul>	<p>Living things and their habitats</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Sort and group animals based on their features, using examples as a guide.</li> <li>• Describe Carl Linnaeus and his development of his classification system.</li> <li>• Place animals into given groups based on certain characteristics.</li> <li>• Design a creature with a specific set of characteristics, using prompts and a word grid.</li> <li>• Name types of microorganism.</li> <li>• Set up an investigation into harmful microorganisms.</li> <li>• Design a microorganism using given characteristics.</li> <li>• Complete descriptions on the characteristics of groups of organisms, using images as prompts.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Give reasons for the classification of animals, using examples as a guide.</li> <li>• Classify living things using the Linnaean system.</li> <li>• Match groups of animals to their characteristics.</li> <li>• Classify creatures based on their characteristics.</li> <li>• Design a creature that has a specific set of characteristics, using prompts.</li> <li>• Describe the useful and harmful effects of different microorganisms.</li> <li>• Identify the variables in an investigation into harmful microorganisms.</li> <li>• Draw conclusions based on their results.</li> <li>• Describe the characteristics of different microorganisms.</li> <li>• Describe the characteristics of groups or organisms, using images as prompts.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain how living things are classified at each level of the Linnaean system.</li> <li>• Design a creature that has a specific set of characteristics.</li> <li>• Explain their predictions and conclusions in an investigation into harmful microorganisms.</li> <li>• Describe and compare the structure of the cells of different organisms.</li> <li>• Describe the characteristics of groups of organisms.</li> </ul>
<b>Summer 1</b>	<p>Plants</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Look closely at plants and trees.</li> <li>• Record what they see by drawing or writing.</li> </ul>	<p>Sound</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Describe sounds around them.</li> <li>• Identify high and low sounds.</li> </ul>	<p>Light</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Recognise that light travels in straight lines.</li> <li>• Describe how light enables us to see.</li> </ul>

	<ul style="list-style-type: none"> <li>• Follow instructions to plant a seed and a bulb.</li> <li>• Order the life cycle of a plant.</li> <li>• Suggest how to care for a plant so it grows well.</li> <li>• Give examples of food crops.</li> <li>• Explain that plants are living things.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Label the main parts of plants and trees</li> <li>• Describe the stages in the life cycle of a plant.</li> <li>• Explain that plants need water, light and a suitable temperature to grow well.</li> <li>• Make observational drawings of plants.</li> <li>• Measure the growth of plants with a ruler.</li> <li>• Record the growth of my plants in a bar chart.</li> <li>• Use observations to explain how we can tell that plants are living things.</li> <li>• Set up a simple comparative test.</li> <li>• Make a simple prediction.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Some children will be able to:</li> <li>• Explain that different plants have different needs.</li> <li>• Compare the growth of different plants.</li> <li>• Give reasons for their answers.</li> <li>• Use observations to suggest conditions that food crops need to grow well.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify loud and quiet sounds.</li> <li>• Observe how different sounds are made.</li> <li>• Describe how sounds change over distance.</li> <li>• Participate in an investigation to find the best material for absorbing sound.</li> <li>• Answer questions based on their learning using prompts.</li> <li>• Create a musical instrument that will play different sounds.</li> <li>• Predict what will happen in an investigation.</li> <li>• Make observations</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain how sound sources vibrate to make sounds.</li> <li>• Explain how vibrations change when the loudness of a sound changes.</li> <li>• Explain how sounds travel to reach our ears.</li> <li>• Describe the pitch of a sound.</li> <li>• Describe patterns between the pitch of a sound and the features of the object that made the sound.</li> <li>• Explain how sound travels through a string telephone.</li> <li>• Identify the best material for absorbing sound.</li> <li>• Create a musical instrument that can play high, low, loud and quiet sounds.</li> <li>• Make observations and conclusions.</li> <li>• Be able to answer questions based on their learning.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain how we hear and interpret sounds.</li> <li>• Explain that sounds travel differently through different materials.</li> <li>• Identify and explain patterns between the pitch of a sound and the features of the object that made the sound.</li> <li>• Explain how sounds change over distance.</li> <li>• Explain why sounds travel better through solids than gases.</li> <li>• Explain why some materials absorb sound.</li> <li>• Explain how their musical instrument plays different sounds.</li> <li>• Set up reliable and accurate investigations.</li> <li>• Make and explain predictions.</li> <li>• Make and record accurate observations.</li> <li>• Use scientific language to explain their findings.</li> <li>• Be able to ask and answer questions based on their learning using scientific language.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand reflection as light bouncing off a surface.</li> <li>• Identify some effects of refraction.</li> <li>• Identify the visible spectrum.</li> <li>• Explore colours using light.</li> <li>• Recognise that Isaac Newton discovered information about light and colour.</li> <li>• Explain that objects block light to form shadows.</li> <li>• Predict what will happen in an investigation.</li> <li>• Make observations.</li> </ul> <p>Most children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain how light travels to enable us to see.</li> <li>• Understand that all objects reflect light.</li> <li>• Identify the angles of incidence and reflection.</li> <li>• Understand refraction as light bending or changing direction.</li> <li>• Explain how a prism allows us to see the visible spectrum.</li> <li>• Understand that colours are a result of light reflecting off an object.</li> <li>• Explain Isaac Newton's experiments about light and colour.</li> <li>• Understand how shadows change size.</li> <li>• Understand that shadows are the same shape as the object that casts them.</li> <li>• Make observations and conclusions.</li> <li>• Be able to answer questions based on their learning.</li> </ul> <p>Some children will be able to:</p> <ul style="list-style-type: none"> <li>• Explain how light enables us to see an object reflected in a mirror.</li> <li>• Recognise that the angles of incidence and reflection are equal.</li> <li>• Explain how light is refracted as it travels through glass or water.</li> <li>• Recognise that the colours of the visible spectrum have different wavelengths.</li> <li>• Understand how filters reflect or absorb different colours of light.</li> <li>• Recognise how Isaac Newton used proof to support his ideas about light and colour.</li> <li>• Set up reliable and accurate investigations.</li> <li>• Make and explain predictions.</li> <li>• Make and record accurate observations.</li> <li>• Use scientific language to explain their findings.</li> <li>• Be able to ask and answer questions based on their learning using scientific language.</li> </ul>
<p><b>Summer 2</b></p>	<p>Scientists and inventors</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• describe things plants need;</li> <li>• construct a mini greenhouse with a partner;</li> <li>• observe how plants grow;</li> <li>• discuss whether doctors are scientists;</li> </ul>	<p>Scientists and inventors</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• Investigate and describe the dangers of deforestation in Madagascar.</li> <li>• Name some endangered animals;</li> <li>• Describe Gerald Durrell and his conservation work</li> </ul>	<p>Scientists and inventors</p> <p>All children should be able to:</p> <ul style="list-style-type: none"> <li>• share facts about Stephen Hawking's life and work;</li> <li>• set up an enquiry into the effects of black holes;</li> <li>• draw a diagram of their observations from an enquiry into black holes;</li> <li>• give facts about Libbie Hyman's life and work;</li> </ul>

- describe when and why we should wash our hands; • take part in an activity to show how germs spread;
- give a minimum of two facts about Charles Macintosh;
- identify Charles Macintosh's famous invention;
- give facts about Rachel Carson;
- take part in an investigation to prove what Rachel Carson found out about water pollution;
- answer questions about where our energy comes from.

Most children will be able to:

- describe how the greenhouses invented at the Eden Project help plants grow healthily;
  - use a ruler to measure the height of plants;
  - use their ideas and observations to explain how doctors use science;
- describe healthy life choices;
- explain what Louis Pasteur found out about germs;
- describe how to wash our hands effectively;
- test materials to find out whether they are waterproof;
- describe an ocean food chain that Rachel Carson studied;
- explain what an investigation shows about water pollution;
- identify renewable and non-renewable sources of energy;
- describe the invention of wind turbines;
- share their ideas about the use of wind power

Some children will be able to:

- explain what the results from an investigation show about how greenhouses help plants grow healthily;
- explain how an activity demonstrates what Louis Pasteur discovered about the way germs spread;
- choose the most suitable material for a waterproof coat, and explain their choice.

- Give five facts about Alexander Graham Bell's life and work
- Present their research into Alexander Bells to an audience
- Sort facts about scientist who discovered oxygen
- Use prompts and key words to explain the effect of oxygen on burning
- Describe absolute zero as the coldest possible temperature;
- Sort statements to describe Lord Kelvin's life and work;
- Identify temperatures on a thermometer;
- Identify appliances that run on electricity;
- Use given ingredients to invent their own toothpaste;

Most children will be able to:

- Investigate and explain the dangers of deforestation in Madagascar;
- Explain the Durrell Trust's conservation program in Madagascar and name some of the animals it protects;
- Give six facts about Alexander Graham Bell's life and work;
- Clearly present their research into Alexander Bell;
- Use prompts to explain the effect of oxygen on burning;
- Demonstrate how particles would behave at absolute zero;
- Accurately read the scale on a thermometer;
- Describe some of Thomas Edison's inventions;
- Explain properties of the toothpaste they invented;
- Use their results to form a conclusion when comparing toothpastes.

Some children will be able to:

- Give seven facts about Alexander Graham Bell's life and work;
- Explain the controversy surrounding Alexander Graham Bell's invention of the telephone;
- Clearly and confidently present their research into Alexander Graham Bells;
- Give their own facts to describe the scientists who discovered oxygen;
- Use their own words to describe the effect of oxygen on burning;
- Explain how the discovery of oxygen changed scientific ideas;
- Correct false statements to accurately describe Lord Kelvin's life and work;
- Convert temperatures between Kelvin and Celsius;
- Explain how Thomas Edison's inventions changed people lives;

- describe the characteristics of invertebrates;
- identify definitions for vocabulary to do with DNA and inheritance;
- create a model of a DNA molecule;
- describe Alexander Fleming's discovery of penicillin;
- construct a scatter graph from a table of results;
- sort facts about Mary Leakey's life and work;
- describe the fossils found by Mary Leakey;
- answer questions about Steve Jobs' life and work

Most children will be able to:

- describe their observations from an enquiry into black holes;
- classify invertebrates using prompts;
- explain the role of DNA in inheritance;
- describe the race to discover the structure of DNA;
- describe the evidence that Watson and Crick used to prove the structure of DNA;
- answer questions about the effects of penicillin using a scatter graph;
- explain the importance of the fossils found by Mary Leakey;
- use recognised symbols to represent computer components.

Some children will be able to:

- explain their observations from an enquiry into black holes;
- classify invertebrates based on their characteristics;
- discuss how the attitudes of people at different times may have presented obstacles to scientists and inventors;
- discuss how microorganisms could develop antibiotic resistance, and the implications of this;
- describe some stages in the evolution of humans.

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|  |  | <ul style="list-style-type: none"><li>• Explain the ingredients they chose to give their toothpaste the properties it needs;</li><li>• Explain their conclusions when comparing toothpastes.</li></ul> |  |
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