



Science Knowledge Progression

Key vocabulary in *italics*.

Reception

	Autumn	Spring	Summer
<p>Personal & Social Development</p> <p>The Natural World</p>	<ul style="list-style-type: none"> • To know how to keep healthy: managing own hygiene such as the importance of hand washing. • To know how to respect and care for the natural environment and all living things. • To recognise signs of <i>Autumn</i>. • To recognise signs of <i>Winter</i>. • To know the meaning of the following words: <i>seasons, winter, ice, freezing, melting, thawing</i>. 	<ul style="list-style-type: none"> • To know that the environment where they live can change through the seasons. • To recognise signs of <i>Winter</i> • To identify changing states of matter: water/ice, <i>melting/freezing</i>. • To recognise signs of <i>Spring</i>. • To know the meaning of the following words: <i>seasons, winter, ice, freezing, melting, thawing</i>. • To know some materials are stronger than others and different purposes require different materials. • To recognise <i>sinking and floating</i>. 	<ul style="list-style-type: none"> • To know what it means to keep healthy: healthy eating, personal hygiene and exercise. • To understand the needs to have healthy teeth and know how to clean them. • To recognise signs of Summer. • To know the importance of looking after our local environment. • To know the importance of water in keeping plants and animals alive. • To understand that animals need to survive (caring for caterpillars/butterflies). • To know the meaning of the following words: Life cycle, cocoon, nature, pupa, hydrate, larvae, symmetry, chrysalis. • To know that plants grow from seeds. • To know what plants need to grow. • To know some similarities and differences between the natural world around them and contrasting environments. • To understand how things change in the natural world, looking at growing different plants and trees. • To recognise how they have grown and changed over the course of the year. • Recognise the habitats of different wildlife and how they use <i>camouflage</i> in order to be a <i>predator</i> or to hide from a predator.



Unit of study	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including <i>deciduous</i> and <i>evergreen</i> trees. identify and describe the basic structure of a variety of common flowering plants, including trees (<i>leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem</i>). 	<ul style="list-style-type: none"> To know the different parts of a plant – <i>roots, stem, leaves, flower, petal</i>. To know the different parts of a tree – <i>roots, trunk, branches, leaves, bark</i>. To know the difference between <i>deciduous</i> and <i>evergreen</i> trees: to name some examples of deciduous and evergreen trees. To name some common wild and garden flowers. To know that seeds need water and warmth to <i>germinate</i>. To know that plants need light, water, soil and a <i>suitable temperature</i> to continue to grow. To know that seeds and bulbs have a store of food inside, allowing them to germinate. 	<ul style="list-style-type: none"> To know the different parts and functions of a flowering plant - <i>roots, stem/trunk, leaves and flowers</i>. Know the role of the roots and stem in nutrition and <i>support</i>, leaves for <i>nutrition</i> and flowers for <i>reproduction</i>. To know that plants can make their own food (but at this stage they do not need to understand how this happens). To identify what plants need to live. To know how water is transported within plants. To know how plants are pollinated and why it is necessary. 	N/A	N/A	N/A
Animals inc. Humans	<ul style="list-style-type: none"> To identify, name, describe and compare a variety of common animals including <i>fish, amphibians, reptiles, birds and mammals</i>. To know <i>carnivores</i> eat meat, <i>herbivores</i> 	<ul style="list-style-type: none"> To know that animals, including humans, can have <i>offspring</i> which grow into adults. To know the names of common animals' offspring (<i>calves, lambs, chicks, foals, ducklings</i>) 	<ul style="list-style-type: none"> To know how living things obtain food. To know the difference between food groups and types of nutrients. To understand why animals need the 	<ul style="list-style-type: none"> To name the main parts of the <i>digestive system (mouth, tongue, teeth, oesophagus, stomach, small and large intestine)</i>. To describe the simple functions of 	<ul style="list-style-type: none"> To describe the changes as humans develop to old age. To know about the changes experienced in <i>puberty</i>. 	<ul style="list-style-type: none"> To name the main parts of the <i>circulatory system</i>. To know the function of the heart, blood vessels and <i>components of blood</i>. To know how water and <i>nutrients</i> are transported within animals, including humans.



	<p>eat plants and <i>omnivores</i> eat both.</p> <ul style="list-style-type: none">To know the official names of the different parts of the human body (<i>head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth</i>) and know which part is associated with which of the 5 senses (<i>sight, smell, taste, touch, hearing</i>).	<ul style="list-style-type: none">To describe the life cycle of a human by using the following terms: <i>baby, toddler, child, teenager, young adult, adult and elderly</i>.To know that all animals require <i>shelter</i>, food and water, space to move around and <i>air/oxygen</i>.To know that a <i>balanced diet</i> is essential for humans to be healthy.To know that a balanced diet consists of <i>protein, carbohydrate, fruit and vegetables, fats and dairy or an alternative</i>.To know some examples of foods that are in each food group.To know that sleep is essential to being able to function well.To know that washing hands prior to handling food and eating is important for humans' health.To know that their body is made up of about 70% water and that water enables	<p>right type and amount of nutrients.</p> <ul style="list-style-type: none">To know the functions of the skeleton as a whole and the function of its parts.To know that humans and some animals have skeletons and muscles for support, protection and movement.	<p>the basic parts of the digestive system in humans.</p> <ul style="list-style-type: none">To identify the different types of teeth in humans (<i>incisors, canines, premolars, molars, wisdom teeth</i>) and know their simple functionsTo understand what a food chain is, identifying <i>producers, predators and prey</i>.		<ul style="list-style-type: none">To understand how the circulatory system enables the body to function.To understand the impact of diet, exercise, drugs and <i>lifestyle</i> on the way their bodies function.To know how to keep their bodies healthy and how they might be damaged.
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		their body to <i>function</i> properly.				
Living things and their habitats	N/A	<ul style="list-style-type: none"> To know the difference between things that are alive, dead or have never lived. To know the characteristics of living things. To begin to understand the seven life processes. To know that a <i>habitat</i> is an <i>environment</i> in which living things <i>survive</i> and <i>thrive</i>. To know that habitats provide living things with what they need: <i>shelter</i>, food and water, space and <i>air/oxygen</i>. To know that both plants and animals <i>adapt</i> to their habitat for survival. To know that habitats can include <i>micro-habitats</i>. To name some living things that live in an <i>ocean</i> habitat. To name and identify mini beasts that live 	N/A	<ul style="list-style-type: none"> To recognise that living things can be grouped in a variety of ways. To know what a classification key is and how one can be used to help group, identify and name a variety of living things in their local and wider environment. To recognise that environments can change and that this can sometimes pose dangers to living things. To know what vertebrates and invertebrates are. To name groups of <i>vertebrates</i> (fish, amphibians, reptiles, birds, mammals) and some <i>invertebrates</i> (snails and slugs, worms, spiders, and insects). To know that plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses. 	<ul style="list-style-type: none"> To describe the life process of reproduction in some plants and animals. To know about different types of reproduction, including <i>sexual</i> and <i>asexual reproduction</i> in plants, and sexual reproduction in animals. To know the functions of the root, root hairs and flower. To know the names and functions of the reproductive parts of a flower. petal, sepal, stamen, anther, filament, stigma, style, ovary, ovule, pollen tube. To understand that seeds are formed through pollination and fertilisation. To understand that seeds are dispersed in different ways. To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. To know about the work of naturalists 	<ul style="list-style-type: none"> To know the broad groups that living things are <i>classified</i> into (<i>micro-organisms/plants/animals</i>). To know that these broad groups are sub-divided into smaller groups such as <i>invertebrates and vertebrates</i> (and know what these are). To identify: <i>mammals/birds/ reptiles/ amphibians / fish/insects / arachnids/arthropods</i>. To know that plants and animals are classified into these groups based on similarities and differences. To know the characteristics of well-known plants and animals, explaining why they are classified into certain groups. To know about the work of <i>Carl Linnaeus</i>, a <i>pioneer</i> of classification.



		<p>in different microhabitats.</p> <ul style="list-style-type: none"> To name some living things that live in a <i>grasslands</i> habitat. To read and describe a <i>food chain</i> accurately. To know that animals can be <i>classified</i> according to their <i>diet</i> e.g. <i>carnivore</i>, <i>herbivore</i>, <i>omnivore</i>. To know that <i>energy</i> is transferred through the food chain. 			and animal behaviourists, for example, David Attenborough and Jane Goodall.	
Evolution and inheritance	N/A	N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> To know that living things change over time. To know that <i>fossils</i> provide information about living things that <i>inhabited</i> the Earth millions of years ago. To know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To know how all animals and plants are <i>adapted</i> to suit their environment in different ways. To know that adaptation may lead to <i>evolution</i>.
Seasons	<ul style="list-style-type: none"> To know the cycle of the 4 seasons (<i>Spring</i>, <i>Summer</i>, <i>Autumn</i>, <i>Winter</i>). 	<ul style="list-style-type: none"> To know why the length of the day changes according to the season. 	N/A	N/A	N/A	N/A



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| | <ul style="list-style-type: none">• To observe and understand seasonal changes.• To recognise signs of autumn, winter, spring and summer by going on seasonal walks around the school and to CFCS and compare to previous explorations.• To recognise the effects that seasonal changes have on animals and their <i>habitats</i>, eg <i>hibernation</i>.• To observe and describe the weather associated with seasons by keeping a chart.• To know and understand how to keep themselves safe during the different seasons, eg summer and winter (know it is unsafe to look at direct sunlight, know that water keeps you <i>hydrated</i>, know that <i>ice</i> can be dangerous).• To know that the change of seasons changes the length of the day. | | | | | |
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<p>Properties and Changes of Materials</p>	<ul style="list-style-type: none"> To know everything is made of <i>natural</i> and <i>man-made</i> materials and to know how to group materials on the basis of their simple <i>properties</i>. To know key vocabulary to describe materials, eg <i>soft, hard, rough, bendy, shiny, dull</i> To recognise, identify, group and name the different materials of <i>wood, plastic, glass, metal, rock, fabric</i>. To know and compare simple properties of materials, eg why is a window made out of glass? Why is a bed not made out of paper? (<i>Opaque/transparent</i>) To know that a fair test will enable them to be able to answer questions, eg which material would make the best house for the Three Little Pigs? To know that materials can react differently to different weather conditions, eg rain and sun (<i>Waterproof/not waterproof</i>) 	<ul style="list-style-type: none"> To know that different <i>materials</i> are suitable for different purposes. To identify the purpose of commonly used items and why the materials they are from are <i>suitable</i>, including <i>wood, metal, plastic, glass, brick, rock, paper and cardboard</i>. Metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles, or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). To know how to compare the suitability of different materials. To know key vocabulary for describing the properties of materials. To know how the shapes of solid objects made from some materials can be changed by <i>squashing, bending,</i> 	<p>N/A</p>	<p>N/A</p>	<ul style="list-style-type: none"> To identify everyday materials on the basis of their properties, including their <i>hardness, solubility, transparency, conductivity (electrical and thermal)</i>, and response to magnets. To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. To understand the terms <i>soluble and insoluble</i>. To know that some mixtures can be separated through <i>filtering, sieving and evaporating</i>. To know the particular uses of everyday materials, including metals, wood and plastic. To know that dissolving, mixing and changes of state are <i>reversible changes</i>. To know that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes 	<p>N/A</p>
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		<i>twisting and stretching.</i>			<p>associated with burning and the action of acid on bicarbonate of soda.</p> <ul style="list-style-type: none"> • To know that some materials can be mixed to form a non-Newtonian substance. • To know (revisit) the stages of the water cycle: <i>condensation, evaporation, precipitation.</i> 	
Rocks and soils	N/A	N/A	<ul style="list-style-type: none"> • To know the three types of rock (<i>igneous, metamorphic, sedimentary</i>), the differences between them and how they are made. • To know the meaning of <i>permeability, durability and density</i> • To know the layers of soil and what soil is made of (<i>rocks and organic matter</i>). • To know what a <i>fossil</i> is and how it was formed. • To know the process by which fossils are formed in sedimentary rock. 	N/A	N/A	N/A
Light	N/A	N/A	<ul style="list-style-type: none"> • To know that light helps us to see and that dark is the absence of light. 	N/A	N/A	<ul style="list-style-type: none"> • To know that light travels in a straight line.



			<ul style="list-style-type: none"> • To understand that we see because light reflects from surfaces. • To know that direct sunlight can be dangerous and how to protect ourselves. • To understand and define the words <i>transparent</i>, <i>translucent</i> and <i>opaque</i>. • To recognise that shadows are formed when light is blocked by an opaque object. • To understand how and why shadows can change size. 			<ul style="list-style-type: none"> • To know that objects are seen because they give out or <i>reflect</i> light into the eye. • To know that we see things because light travels from <i>light sources</i> to our eyes or from light sources to objects and then to our eyes. • To know that shadows have the same shape as the objects that cast them due to the fact that light travels in straight lines.
Forces and Magnets	N/A	N/A	<ul style="list-style-type: none"> • To know that forces are pushes and pulls. • To know that friction acts in the opposite direction to movement, and differs based on the surface. • To understand that forces are invisible. • To know the same of some common types of magnets - bar, ring, button, horseshoe. • To know that some materials are magnetic and others are not. • To know that magnetic materials 	N/A	<ul style="list-style-type: none"> • To know that forces are measured using <i>Newtons</i>. • To understand that <i>gravity</i> is a pulling force that causes objects to have weight. • To know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • To understand that friction (including air resistance) is a force that slows moving objects. 	N/A



			<p>are wholly or partly made of <i>iron, cobalt or nickel</i>.</p> <ul style="list-style-type: none"> To know that some forces need contact between 2 objects, but that magnetic forces can act at a distance. To know that magnets have 2 poles and that they can <i>attract or repel</i> objects. 		<ul style="list-style-type: none"> To understand that water and other liquids exert an upward push on objects called upthrust. To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. 	
Sound	N/A	N/A	N/A	<ul style="list-style-type: none"> To know that sounds are made by something <i>vibrating</i>. To recognise that <i>vibrations</i> from sounds travel through a <i>medium</i> to the ear. To identify patterns between the <i>pitch</i> of a sound and features of the object that produced it. To identify patterns between the <i>volume</i> of a sound and the strength of the vibrations that produced it. To know that sounds get fainter as the distance from the sound source increases. 	N/A	N/A



States of Matter	N/A	N/A	N/A	<ul style="list-style-type: none">• To identify whether something is a <i>solid, a liquid or a gas</i>.• To know that some materials change state when they are heated or cooled.• To know the temperature at which boiling and freezing occurs (in <i>degrees Celsius - °C</i>)• To identify the part played by <i>evaporation</i> and <i>condensation</i> in the water cycle and associate the rate of evaporation with temperature.	N/A	N/A
Electricity	N/A	N/A	N/A	<ul style="list-style-type: none">• To name some common <i>appliances</i> that run on electricity.• To know what a simple series electrical circuit looks like, naming its basic parts or <i>components</i>, including <i>cells, wires, bulbs, switches and buzzers</i>.• To know if a lamp will light in a <i>simple series circuit</i> based on whether or not the lamp is part of a complete loop with a battery.• To know that a switch opens and closes a	N/A	<ul style="list-style-type: none">• To know that the brightness of a lamp or the volume of a buzzer is affected by the number and <i>voltage</i> of <i>cells</i> used in the circuit.• To understand how <i>components</i> function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.• To recognise symbols when representing a simple circuit in a diagram.



				<p>circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <ul style="list-style-type: none">To name some <i>common conductors</i> and <i>insulators</i> and know that metals are good conductors.		
Earth and space	See links with Seasons – observing the changes in the length of day and night.	N/A	N/A	N/A	<ul style="list-style-type: none">To understand the movement of the Earth and other planets in relation to the Sun in the solar system.Pupils should know that the sun is a star at the centre of our solar system and that it has 8 planets: <i>Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006)</i>. They should understand that a moon is a <i>celestial body</i> that <i>orbits</i> a planet (Earth has 1 moon; Jupiter has 4 large moons and numerous smaller ones).To know the different phases of the moon (<i>waxing gibbous, waning gibbous, new moon, full moon,</i>	N/A



					<p><i>waxing crescent, waning crescent).</i></p> <ul style="list-style-type: none">• To understand the differences between the Earth, Sun and Moon.• To understand the movements of planets and moons in the <i>solar system</i>.• To understand the <i>heliocentric and geocentric solar system models</i>.• To know about the work of scientists such as Ptolemy, Alhazen and Copernicus.• To understand how the movement of the Earth and Sun creates day, night and seasons.• To know about different space explorers.	
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