

# Science Overview

## Breadth of Study

Supporting Global Goal 3: Good health and Well-being

	Autumn	Spring	Summer
y e a r 1	<p><b>Plants (Autumn 1)</b> <b>Animals including humans (Autumn 2)</b> <b>Seasonal Changes (Over 3 terms)</b></p>	<p><b>Animals including humans (Spring 1)</b> <b>Everyday Materials (Spring 2)</b> <b>Seasonal Changes (Over 3 terms)</b></p>	<p><b>Light (Summer 1)</b> <b>Seasonal Changes (Over 3 terms)</b></p>
	<p><b>Plants</b> 1.I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. 2.I can identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p><b>Animals including humans</b> 1. I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 2. I understand that there are tiny creatures that are invisible to the naked eye and some of these can cause illness so we must learn how to wash hands.</p>	<p><b>Animals including humans</b> 1.I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals 2.I can identify and name a variety of common animals that are carnivores, herbivores and omnivores 3.I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p><b>Everyday Materials</b> 1.I can distinguish between an object and the material from which it is made 2.I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock 3.I can describe the simple physical properties of a variety of everyday materials 4.I can compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p><b>Seasonal Changes</b> 1. I can observe changes across the four seasons 2. I can observe and describe weather associated with the seasons and how day length varies.</p> <p><b>Light</b> 1.I can explore and make observations about shadows 2. I can make observations about shadows made from different materials</p>
	<p><b>Scientific Enquiry</b> <b>Plants</b></p> <ul style="list-style-type: none"> <li><b>Classifying-</b> allow children to classify, leaves, flowers, and seeds, choosing their own criteria</li> <li><b>Observing over time-</b>observe a tree and a patch throughout the year</li> <li><b>Pattern seeking-</b>based on observations, encourage children to identify patterns e.g. Do bigger seeds mean bigger adult plants?</li> <li><b>Researching-</b> Use secondary sources to name plants and trees. Link lesson with visit the Epping forest</li> </ul> <p><b>Animals including Humans</b></p> <ul style="list-style-type: none"> <li><b>Pattern seeking-</b> children to generate questions for investigations</li> <li><b>Comparative/ Fair testing-</b> can I taste the difference between different flavored sweets or crisps?</li> </ul>	<p><b>Scientific Enquiry</b> <b>Everyday Materials</b></p> <ul style="list-style-type: none"> <li><b>Comparative/ Fair testing-</b> Test objects made of different materials to see how effective they are e.g. absorbency for spills umbrellas for waterproofness, bounciness of balls</li> <li><b>Classifying -</b>Classify objects made from the same material, one object made from different materials, different fabrics based on texture</li> </ul> <p><b>Animals including Humans</b></p> <ul style="list-style-type: none"> <li><b>Classifying-</b> animals they have seen, choosing their own criteria, classify animals based on physical structure, classify animals based on what they eat</li> <li><b>Observing over time-</b> observe animals in the pond area and Aldersbrook forest</li> </ul>	<p><b>Scientific Enquiry</b> <b>Seasonal Changes</b></p> <ul style="list-style-type: none"> <li><b>Pattern seeking-</b> at the end of the year, look for patterns in evidence e.g. Which was the coldest month? Do we have more sunny days in summer?</li> <li><b>Observing over time:</b> <ul style="list-style-type: none"> <li>Take weather measurements and make observations over time using tables and charts</li> <li>Take photos of what children are wearing over the year (scarves, hats summer clothes)</li> <li>Make observations of daylight hours</li> </ul> </li> </ul> <p>Note: pupils should be warned that it is not safe to look directly at the sun, even when wearing dark glasses</p>

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Year 2	Living things and their habitats	Plants (Re-visited throughout the year) Animals including Humans	Uses of everyday materials
	<p><b>Living things and their habitats</b></p> <p>1.I can explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>2.I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</p> <p>3.I can identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>4.I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>	<p><b>Plants</b></p> <p>Pupils should be taught to:</p> <ol 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> </ol> <p><b>Animals including Humans</b></p> <p>Pupils should be taught to:</p> <ol style="list-style-type: none"> <li>I can notice that animals, including humans, have offspring which grow into adults</li> <li>I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> <li>To understand what can be classed as exercise and to investigate what happens to their body (heart rate) when they exercise.</li> <li>To understand the difference between an allergy and not liking something.</li> </ol>	<p><b>Uses of everyday materials</b></p> <p>Pupils should be taught to:</p> <ol style="list-style-type: none"> <li>I can 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>I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ol>
	<p><b>Scientific Enquiry</b> <u>Living things and their habitats</u> <b>Classifying</b></p> <ul style="list-style-type: none"> <li>Find things that are living</li> <li>Find things that are dead</li> <li>Find things that have never been alive</li> <li>Classify things found in the environment (choosing their own criteria to do so), leading to living, dead and never been alive</li> <li>Classify minibeasts found in the environment based on physical structure</li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Explore animals in micro-habitats throughout the year (under a rock, under a log, in a pond, in the eco-garden)</li> <li>Explore plants in micro-habitats throughout the year (e.g. eco-garden, ponds, forest)</li> </ul> <p><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Children generate questions for investigation such as:</li> <li>Are there more dandelions in the meadow or on the field?</li> <li>Where do you see more Blue-bells?</li> <li>Where do you see more worms?</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Use secondary sources to name plants and animals seen in the local environment that they may not currently be able to name (Leafsnap UK on Apple App Store, SEEK INaturalist on google play and Apple App Store, textbooks, Woodland Trust resources)</li> </ul>	<p><b>Scientific Enquiry</b> <u>Plants</u> <b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria:             <ul style="list-style-type: none"> <li>classify seeds</li> <li>classify bulbs</li> </ul> </li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Plant seeds and bulbs and observe how they grow</li> </ul> <p><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Children generate questions for investigation such as: Does the size of the seed affect how long it takes to germinate? Does it matter which way round you plant a bulb or seed? Which comes first, the root or the shoot?</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Look at packets to decide how to plant and care for seeds e.g. How much water do they need? Do they need shade/full sun?</li> </ul> <p><b>Animals including Humans</b> <u>Classifying</u></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria:             <ul style="list-style-type: none"> <li>classify food</li> <li>classify animals</li> </ul> </li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Observe a life cycle (e.g. caterpillars, chicks, farm animals).</li> <li>Observe how their body changes during/after exercise.</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research adult animals and their young e.g. pictures and names of animal babies - swan and cygnet.</li> </ul>	<p><b>Scientific Enquiry</b> <u>Uses of everyday materials</u> <b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria, classify materials e.g. samples of wood, metal, plastic, etc.</li> </ul> <p><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Test materials for different uses (e.g. Which material can you use to make an aeroplane? Which fabric would you use for curtains? Which materials are best for Cinderella's mop? Which fabric would you choose for a swimming costume? Which paper can be used for a book, fabrics for a child's trousers, materials for aeroplanes etc?)</li> </ul>

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Supporting Global Goal 3: Good health and Well-being

<b>Y e a r 3</b>	<b>Plants <i>Revisited throughout the year</i></b> <b>Animals including humans</b>	<b>Rocks</b>  <b>Light</b>	<b>Forces and magnets</b>
	<p style="text-align: center;"><b>Plants</b></p> <p>1.I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>2.I can explore the requirements of plants for life and growth (air, light, water, nutrients from and room to grow) and how they vary from plant to plant .</p> <p>3.I can investigate the way in which water is transported within plants</p> <p>4.I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p style="text-align: center;"><b>Animals including humans</b></p> <p>1.I can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>2. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>3.I can talk about what constitutes a healthy diet (including understanding calories and other nutritional content).</p> <p>4.I understand the principles of planning and preparing a range of healthy meals.</p>	<p style="text-align: center;"><b>Rocks</b></p> <p>1.I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>2.I can describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>3.I can recognise that soils are made from rocks and organic matter.</p> <p style="text-align: center;"><b>Light</b></p> <p>1.I can recognise that they need light in order to see things and that dark is the absence of light</p> <p>2.I can notice that light is reflected from surfaces</p> <p>3.I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>4.I can recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>5.I can find patterns in the way that the size of shadows change.</p> <p>6. I understand about safe and unsafe exposure to the sun, and how to reduce the risk of sun damage, including skin cancer.</p>	<p style="text-align: center;"><b>Forces</b></p> <p>1.I can compare how things move on different surfaces</p> <p>2.I can notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>3.I can observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles</p> <p>4.I can predict whether two magnets will attract or repel each other, depending on which poles are facing</p> <p>5.I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p>
	<p><b>Scientific Enquiry</b></p> <p style="text-align: center;"><b>Plants</b></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Classify flowers based on the children's own criteria. (For testing prior knowledge.)</li> </ul> <p style="text-align: center;"><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Observe celery (with roots and leaves) in coloured water</li> <li>Gather seeds and photographic evidence of blossoms/flowers and berries in the local area</li> </ul> <p style="text-align: center;"><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Investigate what happens when conditions are changed e.g. more/less light/water, change in temperature, nutrients (Baby Bio vs other brands).</li> </ul> <p style="text-align: center;"><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research the functions of the parts of flowering plants</li> <li>Research different methods of seed dispersal</li> <li>Research different methods of pollination</li> </ul> <p style="text-align: center;"><b>Animals including Humans</b></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria classify food items leading to sorting by nutrients</li> <li>Classify animals by own criteria, leading to sorting by whether or not they have skeletons</li> </ul> <p style="text-align: center;"><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Children generate questions for investigation such as: Do 'healthy' drinks have less sugar?</li> <li>Children generate questions for investigation such as: Do people with long arms throw further? Can people with short legs jump higher? Can people with longer legs run faster? Can people with bigger hands catch a ball more easily?</li> </ul>	<p><b>Scientific Enquiry</b></p> <p style="text-align: center;"><b>Rocks</b></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria, (appearance and physical properties) classify rocks.</li> <li>Look at different soils and discuss how they are similar/different</li> </ul> <p style="text-align: center;"><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Observe how soil separates into different layers in water</li> </ul> <p style="text-align: center;"><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Test the hardness of different rocks</li> <li>Test what happens when rocks are put in water</li> <li>Test how quickly water runs through different types of soil.</li> </ul> <p style="text-align: center;"><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research how fossils are formed</li> </ul> <p style="text-align: center;"><b>Light</b></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria: • classify light sources leading to man-made/natural</li> <li>Classify materials (leading to reflective/non-reflective, transparent/translucent/opaque)</li> </ul> <p style="text-align: center;"><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Test materials for reflectiveness</li> <li>Test materials for transparency.</li> <li>Investigate shadows (size of shadows, shape of shadows)</li> </ul>	<p><b>Scientific Enquiry</b></p> <p style="text-align: center;"><b>Forces and Magnets</b></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria sort materials then leading to sorting into metal/non-metal and magnetic/not magnetic)</li> <li>Sort toys/equipment according to what makes them move e.g. push/pull</li> </ul> <p style="text-align: center;"><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Test how objects move on different surfaces e.g. cars, spinning tops, wind-up/clockwork toys</li> <li>Test the strength of different magnets</li> </ul> <p style="text-align: center;"><b>Researching</b></p> <ul style="list-style-type: none"> <li>Find out how magnets are used in everyday life</li> </ul>

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Supporting Global Goal 3: Good health and Well-being

Year 4	Living things and their habitats (revisited throughout the year) Animals including humans	States of matter Sound	Electricity
	<p><b>Living things and their habitats</b></p> <p>1.I can recognise that living things can be grouped in a variety of ways</p> <p>2.I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>3.I can recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p><b>Animals including Humans</b></p> <p>1.I can describe the simple functions of the basic parts of the digestive system in humans</p> <p>2.I can identify the different types of teeth in humans and their simple functions</p> <p>3.I can construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>4.I can recognise the symptoms (mild and severe) of an allergic reaction?</p> <p>5.I can find out what damages teeth (including tooth decay) and how to look after them.</p> <p>6.I understand the importance of regular check ups at the dentist.</p>	<p><b>States of Matter</b></p> <p>1.I can compare and group materials together, according to whether they are solids, liquids or gases</p> <p>2.I can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</p> <p>3.I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p><b>Sound</b></p> <p>1.I can identify how sounds are made, associating some of them with something vibrating</p> <p>2.I can recognise that vibrations from sounds travel through a medium to the ear</p> <p>3.I can find patterns between the pitch of a sound and features of the object that produced it</p> <p>4.I can find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>5.I can recognise that sounds get fainter as the distance from the sound source increases.</p>	<p><b>Electricity</b></p> <p>1.I can identify common appliances that run on electricity</p> <p>2.I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>3.I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>4.I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>5.I can recognise some common conductors and insulators, and associate metals with being good conductors.</p>
<p><b>Scientific Enquiry</b></p> <p><u>Living things and their habitats</u></p> <p><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria classify living things (plants and animals) in their local and wider environment</li> <li>Introduce branching databases/dichotomous keys</li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Observe living things in their local environment at different times of the year</li> </ul> <p><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Do animals with .... have ....?</li> <li>Do plants with .... have ....?</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research and be able to name plants and animals in the wider environment e.g. polar, desert, jungle, etc</li> <li>Research global environmental issues and their impact on living things</li> </ul> <p><u>Animals including Humans</u></p> <p><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Compare and contrast different types of teeth (linking to simple functions)</li> <li>Classify jaw bones/teeth to aid with making food chains e.g. recognise what eats plants and what eats animals by looking at their teeth</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research the different parts of the digestive system. (Children present what they've learned in different ways)</li> <li>Research what different animals eat within a specific environment, e.g. coral, polar, African grasslands, in order to construct food chains.</li> </ul>	<p><b>Scientific Enquiry</b></p> <p><u>States of matter</u></p> <p><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on own criteria classify solids (including grains, crystals, powders)</li> <li>Based on own criteria classify liquids</li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Watch ice melt (ice hands)</li> <li>Watch handprints dry e.g. water hand prints on coloured paper towel</li> <li>Watch frozen liquids melt.</li> </ul> <p><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>What affects the melting rate of chocolate (size of pieces, temperature of water, type of chocolate)?</li> <li>What affects the rate of evaporation?</li> <li>Test the 'runniness' of liquids</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research the melting point of metals</li> <li>Research the water cycle. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.)</li> </ul> <p><u>Sound</u></p> <p><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria, sort musical instruments</li> </ul> <p><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Measure volume from different instruments</li> <li>Measure how volume changes away from a source</li> <li>Investigate string telephones</li> <li>Explore pitch e.g. through a carousel of activities using milk bottles, straw pipes, rulers, elastic band guitars</li> </ul> <p><b>Researching</b></p>	<p><b>Scientific Enquiry</b></p> <p><u>Electricity</u></p> <p><b>Classifying</b></p> <ul style="list-style-type: none"> <li>Based on the children's own criteria, classify household appliances and/or toys (leading to electrical/not electrical, batteries/mains)</li> <li>Test materials to classify into insulators and conductors.</li> </ul>	

- Research, make and play their own instruments based on what they learned about pitch and volume.

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*Supporting Global Goal 3: Good health and Well-being*

<b>Y e a r 5</b>	<b>Living things and their habitats</b>	<b>Properties and changes of materials</b>	<b>Forces</b>
	<b>Animals including Humans</b>	<b>Earth and Space</b>	<b>Forces</b>
	<p style="text-align: center;"><b>Living things and their habitats</b></p> <p>1.I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird 2.I can describe the life process of reproduction in some plants and animals 3.I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food</p> <p style="text-align: center;"><b>Animals including Humans</b></p> <p>1.I can describe the changes as humans develop to old age 2.I can draw humans and some other animals skeletons and muscles 3. I understand the importance of personal hygiene and I know about germs including bacteria and viruses. I know how they are spread and treated, and the importance of handwashing 4. I understand the importance of building regular exercise into daily and weekly routines and how to achieve this; for example walking or cycling to school, a daily active mile or other forms of regular, vigorous exercise 5. I understand the importance of sufficient good quality sleep for good health and that a lack of sleep can affect weight, mood and ability to learn. 6. I can recognise early signs of physical illness, such as weight loss, or unexplained changes to the body.</p>	<p style="text-align: center;"><b>Properties and changes of materials</b></p> <p>1.I can 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 2.I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution 3.I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating 4.I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 5.I can demonstrate that dissolving, mixing and changes of state are reversible changes 6.I can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p> <p style="text-align: center;"><b>Earth and Space</b></p> <p>1.I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system 2.I can describe the movement of the Moon relative to the Earth 3.I can describe the Sun, Earth and Moon as approximately spherical bodies 4.I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p style="text-align: center;"><b>Forces</b></p> <p>1.I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object 2.I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces 3.I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>
	<p><b>Scientific Enquiry</b></p> <p style="text-align: center;"><u>Living things and their habitats</u></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>• Classify animals according to their life cycle</li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>• Grow from cuttings and observe whether they grow roots/stem/ leaf/flower</li> <li>• Grow from, and harvest, bulbs through the year</li> <li>• Observe strawberry/spider plants through the year</li> </ul> <p><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>• Children generate questions such as: Do larger mammals have longer gestation periods? Do larger animals live longer? Do smaller animals lay more eggs?</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>• Generate questions to research the life cycle of a chosen animal: mammal, amphibian, insect, bird e.g. dragon fly, cuckoo, salmon, worm, owl. (Children present what they've learned in different ways)</li> <li>• Research how gardeners asexually reproduce plants</li> </ul> <p style="text-align: center;"><u>Animals including humans</u></p> <p style="text-align: center;"><b>Researching</b></p> <ul style="list-style-type: none"> <li>• Develop questions to ask an expert e.g. a health visitor, doctor or nurse.</li> </ul>	<p><b>Scientific Enquiry</b></p> <p style="text-align: center;"><u>Properties and changes of materials</u></p> <p style="text-align: center;"><b>Classifying</b></p> <ul style="list-style-type: none"> <li>• Based on the children's own criteria classify the materials themselves e.g. samples of wood, metal, plastic, etc</li> <li>• after observing what happens when solids are added to liquids, classify materials based on the outcomes</li> </ul> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>• Observe rusting with uncoated nails in different liquids. (This can be achieved by removing coating with sandpaper)</li> </ul> <p style="text-align: center;"><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>• Which material would be good for a tent?</li> <li>• Which material would be good to make a tea bag from?</li> <li>• Which materials keep things warm/cold?</li> <li>• Test solids for solubility</li> <li>• Compare rates of solubility</li> <li>• Burn different materials (not plastic or toxic substances)</li> </ul> <p style="text-align: center;"><u>Earth and space</u></p> <p><b>Observing over time</b></p> <ul style="list-style-type: none"> <li>• Measure shadows throughout the day</li> <li>• Observing phases of the moon (homework)</li> </ul> <p style="text-align: center;"><b>Researching</b></p> <ul style="list-style-type: none"> <li>• Generate questions to research about the Earth and space for presentation</li> </ul>	<p><b>Scientific Enquiry</b></p> <p style="text-align: center;"><u>Forces</u></p> <p style="text-align: center;"><b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>• Compare friction e.g. trainers or weighted match box pulled with force meter, balloon rockets, CD hovercraft, balloon cars</li> <li>• Compare water resistance e.g. boats in a gutter of water, plasticine in a cylinder of liquid (easier with a more viscous liquid e.g. bubble bath)</li> <li>• Compare air resistance e.g. spinners, parachutes, sailing boats, straw rockets</li> </ul> <p style="text-align: center;"><b>Researching</b></p> <ul style="list-style-type: none"> <li>• Research Heath Robinson and Rube Goldberg machines. (Children present what they've learned in different ways: create a model, write a song, create a PPT, etc. This could be cross-curricular with D&amp;T)</li> </ul>

Scientific enquiry by:  
Primary Science Education Consultancy Ltd

**Article 24: Every child has the right to the best possible health... nutritious food... stay healthy.**  
**Article 29: Education must develop every child's personality, talents and abilities to the full.**

## Science Overview

### Breadth of Study

*Supporting Global Goal 3: Good health and Well-being*

<b>Y e a r 6</b>	<b>Living things and their habitats</b>	<b>Evolution and inheritance</b>	<b>Electricity</b>
	<b>Animals including humans</b>	<b>Light</b>	
	<p><b>Living things and their habitats</b> 1.I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals 2.I can give reasons for classifying plants and animals based on specific characteristics.</p> <p><b>Animals, including humans</b> 1.I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood 2.I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function 3.I can describe the ways in which nutrients and water are transported within animals, including humans. 4. I understand the impact of alcohol on diet and health. 5. I can identify characteristics and physical benefits of an active lifestyle 6. I understand risks associated with an inactive lifestyle (including obesity). 7. I can learn the facts and science relating to allergies, immunisation and vaccination.</p>	<p><b>Evolution and inheritance</b> Pupils should be taught to:</p> <ol style="list-style-type: none"> <li>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <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> </ol> <p><b>Light</b> Pupils should be taught to:</p> <ol 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> </ol>	<p><b>Electricity</b> 1. I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit 2. I can 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 3. I can use recognised symbols when representing a simple circuit in a diagram.</p>
	<p><b>Scientific Enquiry</b> <u>Living things and their habitats</u> <b>Classifying</b></p> <ul style="list-style-type: none"> <li>Classify animals according to Carl Linnaeus' system</li> <li>Classify plants into flowering, mosses, ferns and conifers, based on specific characteristics</li> <li>Create a branching database/dichotomous key to classify a set of living things</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research the characteristics of a vertebrate/invertebrate group for presentation</li> <li>Research the characteristics of flowering plants, mosses, ferns and conifers</li> <li>Research the difference between bacteria, virus and fungi to give reasons why these are not plants or animals</li> <li>Research unusual animals e.g. axolotl, platypus, kangaroos etc.</li> </ul> <p><u>Animals including Humans</u> <b>Observing over time</b></p> <ul style="list-style-type: none"> <li>Observe pulse rates before, during and after exercise</li> </ul> <p><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Children generate questions for investigation such as: Do older people have lower pulse rates? Do boys have higher pulse rates?</li> </ul> <p><b>Comparative/ Fair testing</b></p>	<p><b>Scientific Enquiry</b> <u>Evolution and inheritance</u> <b>Classifying</b></p> <ul style="list-style-type: none"> <li>Classify a species of animal e.g. cats, dogs</li> <li>Classify a species of plant e.g. daffodils, tulips, lilies</li> </ul> <p><b>Pattern Seeking</b></p> <ul style="list-style-type: none"> <li>Use different pieces of equipment, e.g. chopsticks, toothpicks, cutlery, to look for patterns linking the suitability of bird beaks for the available food e.g. rice, grapes, raisins</li> </ul> <p><b>Researching</b></p> <ul style="list-style-type: none"> <li>Research different types of a species and their characteristics making them suitable for different habitats e.g. penguins</li> </ul> <p><b>Light</b> <b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Investigate the shape of shadows and link this to light travelling in straight lines.</li> </ul>	<p><b>Scientific Enquiry</b> <u>Electricity</u> <b>Comparative/ Fair testing</b></p> <ul style="list-style-type: none"> <li>Investigate the effect of adding more bulbs to a circuit</li> <li>Investigate the effect of adding more cells to a circuit</li> <li>Investigate the effect of adding more buzzers to a circuit</li> <li>Investigate the effect of adding more motors to a circuit.</li> </ul>

	<ul style="list-style-type: none"><li>• Complete different activities to compare the impact on their own heart rate</li></ul> <p><b>Researching</b></p> <ul style="list-style-type: none"><li>• Generate questions to research about the human circulatory system for presentation</li></ul>		
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