

Science

National Curriculum Aims and Objectives:

The national curriculum for Science aims to ensure that all pupils:

- The national curriculum for science aims to ensure that all pupils:
- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Vision for Subject at Queenborough School:

At Queenborough School and Nursery we encourage children to ask questions about their world, and find answers through first-hand experience and practical investigation. We aim to develop pupils' enjoyment and interest in Science and an appreciation of its contribution to all aspects of everyday life. We aim to develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics. Our intention is to develop understanding of the nature, processes and methods of Science through different types of Science enquiries that help them to answer scientific questions about the world around them. At Queenborough School and Nursery we strive to ensure children are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

	Pupils should be introduced to and be able to discuss the following...Animals including humans				
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 1	-To know which part of the body is associated with each sense.	-To be able to identify, name draw and label the basic parts of the human body. -To be able to observe closely, using simple equipment. To be able to record data in a table. To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles and mammals. -To be able to describe and compare the structure of a variety of	Birds, fish, amphibians, reptiles, mammals and invertebrates Feathers, scales, gills, fins, hair, land, water, backbone, skeleton Carnivores, herbivores, omnivores Meat, plants (Common parts/structures of animals)	Carl Linnaeus (1707-1778) - The inventor of modern scientific classification. http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/linnaeus/ Amy Vedder (1951 -) - Wildlife biologist and conservationist http://iwaswondering.org/amy_homepage.html	Little Kids First Big Book of Animals (National Geographic Little Kids The 5 Senses (Let's Learn about) Paperback - by Nuria Roca (Author), Rosa Maria Curto (Illustrator) Look, Listen, Taste, Touch, and Smell: Learning about Your Five Senses (Amazing Body) by Pamela H. Nettleton (Author), Becky Shipe (Illustrator) Ways Into Science: What Animal Is It? by Peter Riley (Author) Super Senses: A Lift-the-Flap Book (Dr Seuss - A Lift-the-Flap Book)

		<p>common animals.</p> <ul style="list-style-type: none"> -To be able to use secondary sources to find out more about animals (non-statutory). -To be able to identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. -To be able to sort and group animals with some help (non-statutory). -To be able identify and name a variety of common animals that are carnivores, herbivores and omnivores. -To be able to record data in simple ways (Venn diagram). 	<p>(Names of animals that can be found in the school grounds) (Names of animals that the children keep as pets)</p>		<p>Board book - 4 Apr 2005</p>
<p>Year 2</p>	<ul style="list-style-type: none"> - To know that animals have offspring that grow into adults. To know the importance for humans of eating the right amounts of different types of food. To know the importance for humans of exercise. To know the importance to humans of hygiene. 	<ul style="list-style-type: none"> - To be able to use observations to suggest answers to questions. To be able to record data (flow diagram). To be able to observe using simple equipment. To be able to find out about and describe the basic needs of animals, including humans, for survival (water, food and air). To be able to perform a simple test. 	<p><u>Consolidate vocabulary from Year 1:</u></p> <p>Classification - Birds, fish, amphibians, reptiles, mammals and invertebrates</p> <p>Classification - Carnivores, herbivores, omnivores</p> <p>Stages of growth of many insects - egg, larva, pupa, adult</p> <p>Names of some invertebrates - ladybirds,</p>	<p>David Attenborough (1926 -) http://www.davidattenborough.co.uk/biography/</p>	<p>The Encyclopedia of Animals: A Complete Visual Guide</p> <p>Wild Animal Atlas: Earth's Astonishing Animals and Where They Live (National Geographic Kids)</p> <p>Good Enough to Eat: A Kid's Guide to Food and Nutrition Paperback - by Lizzy Rockwell</p> <p>Oliver: Oliver's Fruit Salad Paperback - Oliver : Oliver's Vegestables Oliver's milkshake by Alison Bartlett (Author), Vivian French</p>

			<p>butterflies, dragonflies, etc</p> <p>Names of some amphibians - smooth newt, common frog, toad</p> <p>Stages of life - baby, toddler, child, teenager, adult</p> <p>Life processes - growth, nutrition (feeding), respiration (breathing is part of this)</p> <p>Hygiene - clean, wash, germs</p> <p>Foods - healthy, grow, strong, energy</p>		<p>Why do we eat? (Usborne Beginners) Hardcover by Stephanie Turnbull (Author)</p> <p>What's That Smell?: A Kids' Guide to Keeping Clean (Start Smart: Health) Paperback - 1 Sep 2014 by Rachelle Kreisman (Author), Tim Haggerty (Illustrator)</p>
<p>Year 3</p>	<p>- To know that animals cannot make their own food.</p> <p>To know that animals, including humans, need the right amounts and types of food.</p> <p>To know that humans and some animals have skeletons and muscles for support, protection and movement.</p>	<p>- To be able to record using drawings.</p> <p>To be able to report on findings from enquiries.</p> <p>To be able to use evidence to answer questions.</p> <p>To be able to set up a comparative test.</p> <p>To be able to record data in a table.</p> <p>To be able to identify the correct type of enquiry to answer a question.</p> <p>To be able to record data</p>	<p><u>Consolidate Vocabulary from Key Stage 1.</u></p> <p>Nutrition</p> <p>Diet</p> <p>Vitamins, minerals, fats, proteins and carbohydrates</p> <p>Functions of skeletons - protect, support and aid movement</p>	<p>Diane France (1954 -) Diane France solves mysteries and crimes by deciphering the stories bones tell her. http://iwaswondering.org/diane_homepage.html</p>	<p>The Encyclopedia of Animals: A Complete Visual Guide The Animal Book (Reference) by Dk (Author)</p> <p>Me and My Amazing Body Paperback - by Joan Sweeney (Author), Annette Cable (Illustrator)</p> <p>See Inside Your Body (Usborne Flap Books) Board book - 28 Jan 2006 by Katie Daynes (Author), Colin King (Illustrator)</p> <p>Look Inside: Your Body (Usborne Look Inside) Hardcover by Louie Stowell (Author), Kate Leake (Illustrator)</p>

		in a scatter graph (non-statutory).			
Year 4	-To know the different types of teeth in humans and their simple functions	<p>-To be able identify the different types of teeth in humans and their simple functions.</p> <p>-To be able to identify the correct type of enquiry to answer a question.</p> <p>-To be able to set up a simple test.</p> <p>-To be able to describe the simple functions of the basic part of the digestive system in humans.</p> <p>-To be able to record findings using labelled diagrams.</p> <p>-To be able to use written explanations to report on findings from an enquiry</p> <p>-To be able to construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>-To be able to use evidence to support findings.</p>	<p><u>Consolidate Vocabulary from Year 3.</u></p> <p>Digestive system - , oesophagus, stomach, acid, small intestine</p> <p>Protein, vitamin, mineral, carbohydrate, fats, energy, growth, repair.</p> <p>Saliva</p> <p>Teeth - Incisors, canines, premolars, molars</p> <p>Function</p> <p>Foodchain - producer, consumer, predator, prey</p>	<p>Al-Jahiz (9th Century) - Provided one of the earliest descriptions of food webs. He was working in Baghdad, Iraq, in the early 800s.</p> <p>Charles Elton (1900 – 1991) - Initiated the study of animal ecology</p>	<p>I Know Why I Brush My Teeth (Sam's Science) Paperback - by Kate Rowan (Author), Katharine McEwen (Illustrator)</p> <p>Open Wide: Tooth School Inside (An Owllet Book) Paperback - by Laurie Keller (Author)</p> <p>The Teeth that Looked for a New Mouth: A Story of a Boy Who Didn't Like to Brush his Teeth Paperback -</p>
	<p>Pupils should be introduced to and be able to discuss the following...</p> <p>Year1 and 2 - Everyday materials</p> <p>Year 3 -Rocks</p> <p>Year 4- States of Matter</p> <p>Year 5 - Properties and changes of materials</p>				
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 1	To know the simple physical properties of a	-To be able to distinguish between an object and the material from	Types of materials: wood,	John Boyd Dunlop (1840 -	Matter: See It, Touch It, Taste It, Smell It (Amazing

	variety of everyday materials.	<p>which it is made.</p> <p>-To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>-To be able to identify and classify.</p> <p>-To be able to compare and group together a variety of everyday materials on the basis of their physical properties.</p> <p>-To be able to observe carefully , using simple equipment.</p> <p>-To be able to describe the simple physical properties of a variety of everyday materials.</p> <p>-To be able to perform simple tests</p> <p>-To be able to record simple data in order to answer a question</p> <p>-To be able to ask simple questions.</p> <p>-To be able to identify and classify.</p>	<p>plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil</p> <p>Properties of materials: hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky</p> <p>Verbs associated with materials: crumble, squash, bend, stretch, twist</p> <p>Senses: touch, see, hear, smell and taste</p>	<p>1921) - http://www.ulsterhistory.co.uk/johndunlop.htm</p> <p>Charles Macintosh (176 - 1843) - http://www.rampantscotland.com/inventors/inventions_waterproof.htm</p> <p>John McAdam (1756 - 1836) - http://inventors.about.com/library/inventors/blJohnMcAdam.htm</p>	<p>Science (Picture Window))</p> <p>Comparing Materials (Physical Science) Hardcover - 7 Jan 2009</p> <p>by Cassie Mayer (Author)</p>
Year 2	N/A	<p>To be able to distinguish between an object and the material from which it is made.</p> <p>To be able to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. To be able to perform simple tests.</p> <p>To use their observations and ideas to suggest answers to questions.</p> <p>To be able to ask simple questions and recognise that they can be answered in different ways.</p> <p>To be able to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>To be able to identify and compare the suitability of a variety of everyday materials, including wood,</p>	<p>Types of materials: wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil</p> <p>Properties of materials: hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky</p> <p>Verbs associated with materials: crumble, squash, bend, stretch, twist</p> <p>Senses: touch, see, hear, smell and taste</p>	<p>Leo Hendrik Baekeland (1863 -1944) - http://www.chemheritage.org/discover/online-resources/chemistry-in-history/themes/petrochemistry-and-synthetic-polymers/synthetic-polymers/baekeland.aspx</p> <p>Charles Goodyear (1800 - 1860) - http://www.american-inventor.com/charles-goodyear.aspx</p> <p>Dr Alex King (contemporary materials scientist) - talks about materials and their properties - http://www.strangematterexhibit.com/popup.html?asset=whatis_panel&page=videoeveryone</p>	<p>Materials (Science Kids) Paperback</p> <p>by Clive Gifford (Author)</p> <p>What Is a Solid? (First Step Nonfiction)</p> <p>by Jennifer Boothroyd (Author)</p> <p>The three little pigs</p>

		<p>metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>To be able to identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.</p> <p>To be able to use their observations and ideas to suggest answers to questions.</p> <p>To be able to gather and record data to help in answering questions.</p>			
Year 3	<p>- To understand that soils are made from rocks and organic matter.</p>	<p>-To be able to compare and group together different kinds of rocks on the basis of their appearance. -To be able to make careful observations.</p> <p>-To be able to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. -To be able to set up simple comparative tests. To be able to measure using beakers and syringes.</p> <p>-To be able to describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>-To be able to recognise that soils are made from rocks and organic matter -To be able to measure using beakers and syringes.</p> <p>-To be able to use presentations to report on findings from enquiries</p>	<p>Names of rocks - Chalk, limestone, granite, basalt, sandstone, flint, slate, shale, marble</p> <p>Types of rock - Sedimentary, metamorphic, igneous</p> <p>Types of minerals - Calcite, feldspar, topaz, diamond, talc, corundum</p> <p>Properties of rocks - Hard/soft, permeable/impermeable</p> <p>Processes - Heat, pressure, erosion, transportation, deposition, melt, solidify</p> <p>Size of rocks - Grain, pebbles</p> <p>Rock describing words - Crystals, layers</p> <p>Early areas of land - Gondwana, Pangea</p> <p>Land formations - Plates,</p>	<p>http://www.geologists.org.uk/famous-geologists/</p> <p>The website above is a good place to search for more information on famous geologists</p> <p>Professor Ian Stewart (contemporary geologist)</p> <p>Adriana Ocampo (1955 -) Space geologist http://iwaswondering.org/inez_homepage.html</p> <p>Friedrich Mohs (1773-1839) Inge Lehmann (1888-1993) Alfred Wegener (1880 - 1930) Tuzo Wilson (1908- 1993) Marie Tharp(1920 - 2006) Dorothea Bate (1878 - 1951)An outline of her work and a timeline can be found at</p>	<p>National Geographic Kids Everything Rocks and Minerals: Dazzling Gems of Photos and Info That Will Rock Your World Paperback by Steve Tomecek</p> <p>Naturetrails: Rocks and Fossils (Usborne Nature Trail) Paperback - 1 Dec 2010 by Struan Reid</p> <p>Rocks and Minerals (Usborne Spotter's Guide) Paperback - 31 Mar 2006 by Alan Woolley (Author), Mike Freeman (Illustrator)</p>

			volcanoes, mountains, valleys	<p>http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/dorotheabate/index.htmlWilliam Smith (1769 - 1839)</p> <p>An outline of his work and a timeline can be found at - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/william-smith/index.html</p> <p>Mary Anning (1799-1847)</p> <p>An outline of her work and a timeline can be found at - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/mary-anning/index.html</p> <p>James Hutton (1726 - 1797)</p>	
Year 4	<p>-To understand that some materials change state when they are cooled or heated.</p>	<p>-To be able to compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>-To be able to set up a fair test.</p> <p>-To be able to use results to draw simple conclusions</p> <p>-To be able to 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>-To be able to use a data logger to take accurate measurements.</p> <p>-To be able to use a thermometer to take accurate measurements.</p> <p>To be able to provide a written explanation.</p>	<p>States of matter - Solid, liquid and gas</p> <p>Examples of gases (at room temperature and pressure) - Oxygen, hydrogen, helium, carbon dioxide, methane</p> <p>Examples of liquids (at room temperature and pressure) - Water, milk, juice, petrol, oil</p> <p>Examples of solids (at room temperature and pressure) - Wood, rocks, metal, plastic, glass, wool, leather, etc</p> <p>Processes - Melting, condensation, evaporation, solidifying, freezing</p>	<p>Alfred Barnhard Nobel (1833-1896) - http://www.nobelprize.org/alfred_nobel/</p> <p>Royal Society of Chemistry - 'The 175 Faces of Chemistry' provides information on contemporary chemists and chemists of the past - http://www.rsc.org/diversity/175-faces/all-faces</p>	<p>Solids, Liquids, And Gases (Rookie Read-About Science) Paperback</p> <p>Solids, Liquids, and Gases (Essential Physical Science) Paperback - 3 Jul 2014 by Louise Spilsbury (Author), Richard Spilsbury (Author)</p> <p>Solids, Liquids and Gases (Science Answers) by Carol Ballard</p> <p>Changing States: Solids,</p>

		<p>To be able to set up a fair test.</p> <p>-To be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> <p>-To be able to use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Water cycle</p> <p>Water vapour</p> <p>Steam</p> <p>Heating</p> <p>Cooling</p>		<p>Liquids, and Gases (Do It Yourself) Paperback - 20 Apr 2010</p> <p>by</p> <p>Will Hurd (Author)</p>
Year 5	N/A	<p>To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat.</p> <p>To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>To take accurate measurements using a data-logger.</p> <p>To be able to measure accurately using a thermometer.</p> <p>To be able to record data in a line graph.</p> <p>To be able to use test results to make predictions to set up further comparative and fair tests.</p> <p>To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations.</p> <p>To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of electricity.</p> <p>To be able to plan a scientific enquiry that will answer a question.</p>	<p>Thermal conductivity - thermal conductor, thermal insulator</p> <p>Electrical conductivity - electrical conductor, electrical insulator</p> <p>Dissolving - Solvent, solution, solute, soluble, insoluble, solid, liquid, particles, suspensions</p> <p>Separating materials - Sieve, filter, evaporate, condense</p>	<p>Antoine Lavoisier (1743 - 1794)</p> <p>Dmitri Mendeleev (1834 - 1907)</p> <p>Sir Humphry Davy (1778 - 1829)</p> <p>John Dalton (1766 - 1844)</p> <p>Marie Curie (1867-1934)</p> <p>Royal Society of Chemistry - 'The 175 Faces of Chemistry' provides information on contemporary chemists and chemists of the past - http://www.rsc.org/diversity/175-faces/all-faces</p>	<p>The Usborne Internet linked Library of Science Materials</p> <p>Working with Materials: Mixing and Separating Materials by Chris Oxlade (27 Mar 2008)</p> <p>Evaporation: Matter (Science Readers: A Closer Look)</p> <p>Condensation (Science Readers: A Closer Look)</p> <p>William B. Rice (Author)</p> <p>Dissolving (First Step Nonfiction) Paperback - January 1, 2007</p> <p>by Sheila Rivera (Author)</p>

		<p>To be able to understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>To be able to recognise control variables when planning a fair-test.</p> <p>To be able to evaluate an enquiry in terms of the amount of trust one can have in it.</p> <p>To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations.</p> <p>To be able to 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>To be able to demonstrate that dissolving, mixing and changes of state are reversible changes.</p>			
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Pupils should be introduced to and be able to discuss the following... Plants					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 1	N/A	To be able to identify and describe the basic structure of a variety of common	Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime,	Barbara McClintock (1902 - 1992)	National Geographic

		<p>plants including roots, stem/trunk, leaves and flowers. To be able to identify and name a variety of common plants. To be able to classify trees as deciduous and evergreen. To be able to observe closely.</p> <p>To be able to ask simple questions and recognise that they can be answered in different ways. To be able to observe carefully using simple equipment To be able to use parts of the plant to identify and classify it. To be able to use simple features of a plant to sort and group them (non-statutory). To be able to ask simple questions and recognise the ways in which they can be answered.</p>	<p>oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc</p> <p>Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</p> <p>Garden plants - crocus, daffodil, bluebells, etc</p> <p>Parts of plants - roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</p>	<p>Joseph Banks (1743 - 1820)</p> <p>Gregor Mendel (1822 - 1884)</p> <p>Carl Linnaeus (1707 - 1778)</p> <p>George Forrest (1873 - 1932)</p>	<p>readers: <i>Seed to Plant</i> Paperback - January 7, 2014 by Kristin Baird Rattini (Author)</p>
Year 2	N/A	<p>To be able to observe how bulbs grow into mature plants. To be able to observe and describe how seeds grow into mature plants.</p> <p>To be able to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. To be able to perform a simple test To be able to recognise that questions can be answered in a range of ways. To be able to observe closely using simple equipment.</p> <p>To be able to sort objects using observable features (non-statutory). To be able to gather and record data to</p>	<p>Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc</p> <p>Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</p> <p>Garden plants - crocus, daffodil, bluebells, etc</p> <p>Parts of plants - roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</p>	<p>Barbara McClintock (1902 - 1992)</p> <p>Joseph Banks (1743 - 1820)</p> <p>Gregor Mendel (1822 - 1884)</p> <p>Carl Linnaeus (1707 - 1778)</p> <p>George Forrest (1873 - 1932)</p>	<p><i>How a Seed Grows</i> (Let's-Read-and-Find-Out Science 1) by Helene J. Jordan (Author), Loretta Krupinski (Illustrator)</p> <p><i>The Tiny Seed</i> (The World of Eric Carle) Hardcover - March 10, 2009 by Eric Carle (Author, Illustrator)</p>

		<p>help in answering a question. To use their observations and ideas to suggest answers to questions</p>	<p>Need of plants - water, light, heat, temperature</p>		<p>Plant Secrets Paperback - by Emily Goodman</p>
Year 3	N/A	<p>To be able to explore the requirements of plants for life and growth (air, light, water, nutrients from soil). To be able to identify and describe the function of the flower. To be able to set up a simple practical enquiry. To be able to identify and describe the function of the roots. To be able to investigate the ways in which water is transported within plants. To be able to identify and describe the function of the stem. To be able to identify and describe the function of the leaves To be able to make systematic and careful observations To be able to gather and record data. To be able to use results to draw simple conclusions. To be able to use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine, holly, etc Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow. Garden plants - crocus, daffodil, bluebells, etc Parts of plants - roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs Parts of a flower - petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule) Processes - pollination, fertilisation, germination</p>	<p>Barbara McClintock (1902 - 1992) Joseph Banks (1743 - 1820) Gregor Mendel (1822 - 1884) Carl Linnaeus (1707 - 1778) George Forrest (1873 - 1932)</p>	<p>Plant Parts (The Life of Plants) Paperback - August 5, 2008 by Louise Spilsbury (Author), Richard Spilsbury (Author) Flowers (Plant Parts) Paperback - by Vijaya Khisty Bodach (Author) Plant Stems & Roots (Look Once, Look Again Science Series) Paperback - March 1, 1998 by David M. Schwartz (Author), Dwight Kuhn (Photographer)</p>

Pupils should be introduced to and be able to discuss the following... Seasonal change					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 1	N/A	To be able to observe and describe weather associated with the seasons and how day	Seasons; spring, summer, autumn, winter Year, months, days	John Dalton (1766 - 1844) - Famous for the amount of time he kept a weather diary for. http://www.sciencemuseum.org.uk/onlinestuff/people/john%20dalton.aspx	Winter's Coming: A Story of Seasonal

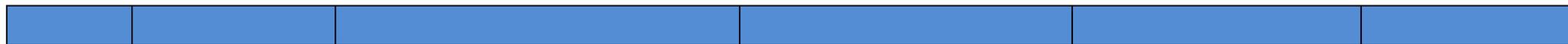
	<p>length varies. To be able to observe changes across the four seasons.</p> <p>To be able to ask simple questions and recognise that they can be answered in different ways. To able to identify objects. To able to perform simple tests. To be able to observe closely, using simple equipment. To be able to gather and record data to help answer a question.</p>	<p>Hot, warm, mild, cold</p> <p>Sunny</p> <p>Cloudy</p> <p>Rain, sleet, snow, hail, thunder, lightning, rainbow</p> <p>Wet, damp, dry</p> <p>Windy, breezy, gust</p> <p>Temperature</p> <p>Degrees Celsius</p> <p>Thermometer</p> <p>Weather vane</p> <p>Anemometer</p>	<p>Gabriel Fahrenheit (1686 - 1736) - Inventor of the first modern thermometer. http://inventors.about.com/od/fstartinventions/a/Fahrenheit.htm</p> <p>Inez Fung (1941 -) - Studies climate change. http://iwaswondering.org/inez_homepage.html</p>	<p>Change Hardcover - 14 Oct 2014 by Jan Thornhill (Author), Josee Bisailon (Illustrator)</p> <p>First Facts Seasons Hardcover by DK (Author)</p> <p>Skip Through the Seasons Paperback - Illustrated, 1 Sep 2006 by Stella Blackstone (Author), Maria Carluccio (Illustrator)</p>
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Pupils should be introduced to and be able to discuss the following... Living things and their habitats					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 2	N/A	<p>To be able to explore and compare the differences between things that are living, dead, and things that have never been alive. To be able to 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 To be able to 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</p>	<p>Habitat, micro habitat</p> <p>Pond, meadow, log pile, woodland, river, lake, beach, cliff</p> <p>Organism - plant, animal</p> <p>Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine, holly, etc</p> <p>Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic</p>	<p>Kate Humble (1968 -) - naturalist and presenter on BBC of wildlife programs</p> <p>Steve Backshall (1973 -) - naturalist and presenter on BBC of wildlife programs</p> <p>Chris Packham (1961 -) - naturalist and presenter on BBC of wildlife programs</p>	<p>ABCs of Habitats (ABCs of the Natural World) Paperback - by Bobbie Kalman (Author)</p> <p>Desert Habitat (Introducing Habitats) by Kelley MacAulay and Bobbie Kalman</p>

		<p>food.</p> <p>To be able to identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>To be able to ask simple questions and recognise that they can be answered in different ways.</p> <p>To be able to observe closely.</p> <p>To be able to gather and record data to help answer a question.</p> <p>To be able to record data in a tally chart.</p> <p>To be able to record data in a bar chart.</p> <p>To be able to use observations to suggest answers to questions.</p> <p>To be able to observe using a microscope/hand lens</p>	<p>mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</p> <p>Garden plants - crocus, daffodil, bluebells, etc</p> <p>Parts of plants - roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</p> <p>Invertebrates - snail, slug, woodlouse, spider, beetle, fly, etc</p> <p>Pond animals - pond skater, water slater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc</p>		<p>An Antarctic Habitat (Introducing Habitats) by Molly Aloian and Bobbie Kalman</p> <p>A Rainforest Habitat (Introducing Habitats) by Molly Aloian and Bobbie Kalman</p>
Year 4	N/A	<p>To be able to recognise that living things can be grouped in a variety of ways.</p> <p>To be able to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>To be able to recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>To be able to gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>To be able to report on findings from enquiries, including oral and written explanations.</p>	<p>Habitat, micro habitat</p> <p>Pond, meadow, log pile, woodland, river, lake, beach, cliff</p> <p>Organism - plant, animal</p> <p>Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine, holly, etc</p> <p>Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.</p> <p>Garden plants - crocus, daffodil, bluebells, etc</p> <p>Parts of plants - roots, branch,</p>	<p>Carl Linnaeus (1707 - 1778) - Developed a method for classifying all living things on the planet.</p> <p>http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/linnaeus/</p>	<p>Hostile Habitats - Scotland's Mountain Environment: A Hillwalkers' Guide to Wildlife and the Landscape Hardcover - by Mark Wrightham (Editor), Nick Kempe</p> <p>Where the Forest Meets the Sea / Window Paperback - by Jeannie Baker (Author, Illustrator)</p>

			<p>trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</p> <p>Invertebrates - snail, slug, woodlouse, spider, beetle, fly, etc</p> <p>Pond animals - pond skater, water slater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc</p>		
Year 5	N/A	<p>To be able to explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>To be able to describe the life process of reproduction in some plants and animals</p> <p>To be able to plan the correct enquiry to answer a question.</p> <p>To be able to recognise which secondary sources will be most useful to their research (non-statutory).</p> <p>To be able to use scientific diagrams and labels.</p> <p>To be able to explain findings.</p>	<p>Animals - amphibians, reptiles, birds, mammals, insects, fish</p> <p>Animal development - egg, larva, pupa, nymph, adult, metamorphosis</p> <p>Parts of a flower - petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule)</p> <p>Processes - pollination, fertilisation, germination</p>	<p>There are plenty of contemporary scientists working in this field. Look out for current information on science related to reproduction. For example:</p> <p>Kansas State University is currently investigating how to shut down the reproductive ability and desire in pest insects - http://www.sciencedaily.com/releases/2013/08/130826182917.htm</p> <p>Berry J. Brosi, an assistant professor at Emory University in Atlanta, and Heather M. Briggs, a graduate student at the University of California, Santa Cruz found that a loss of bees affects a plant's ability to reproduce. http://www.nytimes.com/2013/07/23/science/loss-of-bees-can-affect-plants-ability-to-reproduce-study-finds.html?_r=0</p>	<p>Animals: Mammals, Birds, Reptiles, Amphibians, Fish, and Other Animals (Class of Their Own)</p> <p>Shar Levine (Author), Leslie Johnstone (Author)</p> <p>Animal Secrets: Animal Life Processes (Life Processes and Living Things)</p> <p>Deborah Underwood (Author)</p> <p>Animal Life Cycles: Growing and Changing (Nature's Changes) Paperback</p>

Year 6	N/A	<p>To be able to 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.</p> <p>To be able to give reasons for classifying plants and animals based on specific characteristics.</p> <p>To be able to make a key to classify plants.</p> <p>To be able to identify scientific evidence that has been used to support or refute ideas or arguments</p>	<p>Classification</p> <p>Vertebrate, invertebrate</p> <p>Kingdoms: animal, plant, 'micro-organism'</p> <p>Classes: amphibian, reptile, bird, mammal,</p> <p>Scales, feathers</p> <p>Flowering plant, non-flowering plant</p>	<p>Carl Linnaeus (1707-1778)</p> <p>The following video outlines the work of Carl Linnaeus - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/linnaeus/</p> <p>Evelyn Cheesman (1881 - 1969)</p> <p>The following video outlines the work of Evelyn Cheesman - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/evelyn-cheesman/index.html</p> <p>Sir Hans Sloane (1660 - 1753)</p> <p>The following video outlines the work of Sir Hans Sloane - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/hans-sloane/index.html</p> <p>Gilbert White (1720 - 1793)</p> <p>The following website outlines the work of Gilbert White - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/gilbert-white/index.html</p>	<p>Plants! (Time for Kids Science Scoops) Paperback - 1 May 2006</p> <p>by Time for Kids Magazine (Author), Brenda Iasevoli (Author)</p>
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Pupils should be introduced to and be able to discuss the following... Forces and Magnets					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 3	<p>-To know that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>-To know magnets have 2 poles</p>	<p>-To be able to compare how things move on different surfaces</p> <p>To be able to Observe how magnets attract or repel each other and attract some materials and not others</p> <p>-To be able to 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>-To be able to predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>To be able to set up a simple fair-test.</p> <p>To be able to record findings in a bar chart.</p> <p>To be able to identify changes related to scientific ideas.</p> <p>To be able to use results to draw simple conclusions.</p> <p>To be able to provide an oral explanation of findings.</p> <p>To be able to make systematic and careful observations.</p>	<p>Magnets - bar and horseshoe</p> <p>Attract, repel</p> <p>North and south poles</p> <p>Magnetic</p> <p>Magnetic field</p>	<p>William Gilbert (1544 - 1603) - http://www.bbc.co.uk/history/historic_figures/gilbert_william.shtml</p> <p>Hans Christian Oersted (1777 - 1851) - http://news.nationalgeographic.co.uk/news/2009/08/090814-hans-christian-orsted-oersted-who.html</p>	<p>What Makes a Magnet? (Let's Read and Find Out Science) Paperback - 31 Aug 1996 by Franklyn Branley (Author), True Kelley (Illustrator)</p> <p>What Magnets Can Do (Rookie Read-About Science) by Allan Fowler (Author)</p> <p>Magnets: Pulling Together, Pushing Apart (Amazing Science) (by Natalie M. Rosinsky (Author), Sheree Boyd (Illustrator)</p>
Year 5	N/A	<p>To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>To be able to identify the effects of air</p>	<p>Types of forces: gravity, friction, air resistance, upthrust, weight</p> <p>Measuring forces: Newton meter, Newtons (N)</p> <p>Particles</p>	<p>Sir Isaac Newton (1642 - 1727) - Formulated the laws of motion - http://www.bbc.co.uk/history/historic_figures/newton_isaac.shtml</p>	<p>Can You Feel the Force?: Putting the fizz back into physics by Richard Hammond</p>

	<p>resistance, water resistance and friction, that act between moving surfaces.</p> <p>To be able to recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>To be able to identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>To be able to take repeated accurate measurements using a stopwatch.</p> <p>To be able to explain the degree of trust in results.</p> <p>To be able to use test results to make predictions to set up further fair-tests</p> <p>To be able to plan a fair-test; identifying the control variables</p>	<p>Surface area</p> <p>Push, pull</p> <p>Balance</p> <p>Mass - grams and kilograms</p> <p>Mechanical devices - gears, levers, pulleys, springs</p>	<p>Christopher Cockerell (1910- 1999) - Inventor of the hovercraft - http://www.design-technology.info/inventors/page11.htm</p> <p>Archimedes (c.287 - c.212 BC) - Greek inventor - http://www.bbc.co.uk/history/historic_figures/archimedes.shtml</p>	
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Pupils should be introduced to and be able to discuss the following... Light				
Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:

Year 3	N/A	<p>To be able to recognise that they need light in order to see things and that dark is the absence of light.</p> <p>To be able to notice that light is reflected from surfaces.</p> <p>To be able to recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>To be able to recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>To be able to find patterns in the way that the sizes of shadows change.</p> <p>To be able to set up a simple fair test</p> <p>To be able to make systematic and careful observations and measurements</p> <p>To be able to record findings as drawings.</p> <p>To be able to record findings as a bar chart</p> <p>To be able to make predictions for further values.</p>	<p>Simple comparisons: dark, dull, bright, very bright</p> <p>Comparative vocabulary: brighter, duller, and darker</p> <p>Superlative vocabulary: brightest, dulllest, and darkest</p> <p>Opaque, translucent, transparent</p> <p>Shadow - block, absence of light</p> <p>Reflect - bounce, mirror, reflection</p> <p>See - light source</p> <p>Sun - sunset, sunrise, position</p>	<p>James Clerk Maxwell (1831-1879) - http://www.clerkmaxwellfoundation.org/html/who_was_maxwell.html</p> <p>Thomas Young (1773 - 1829)</p>	<p>New Star Science Year 3/P4: Light and Shadows Pupil's Book (STAR SCIENCE NEW EDITION) by Rosemary Feasey (Author), Anne Goldsworthy John Stringer (Author), Roy Phipps (Author)</p> <p>Light Is All Around Us (Let's-Read-and-Find... Science 2) by Wendy Pfeffer and Paul Meisel</p>
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Year 6	N/A	<p>To recognise that light appears to travel in straight lines.</p> <p>To be able to 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.</p> <p>To be able to 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</p> <p>To be able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>To be able to use scientific evidence to support or refute an idea.</p> <p>To be able to use test results to make predictions to set up further comparative tests.</p> <p>To be able to plan a fair-test; recognising and controlling variables</p> <p>To be able to plan a scientific enquiry to answer a question</p> <p>To be able to report as to the degrees of trust in results</p>	<p>Simple comparisons: dark, dull, bright, very bright</p> <p>Comparative vocabulary: brighter, duller, and darker</p> <p>Superlative vocabulary: brightest, dimmest, and darkest</p> <p>Opaque, translucent, transparent</p> <p>Shadow - block, absence of light</p> <p>Reflect - bounce, mirror, reflection</p> <p>See - light source</p> <p>Sun - sunset, sunrise, position</p>	<p>Thomas Young (1773 - 1829) - Wave theory of light. Double-slit experiment.</p> <p>Sir David Brewster (1781 - 1868) - Deduced "Brewster's law" giving the angle of incidence that produces reflected light which is completely polarized; invented the kaleidoscope and the stereoscope, and improved the spectroscope</p> <p>Jean-Bernard-Leon Foucault (1819-1868) - Accurately measured the speed of light</p>	<p>Discover Science: Light and Sound by Mike Goldsmith and Kingfisher</p> <p>Frightening Light (Horrible Science) by Nick Arnold and Tony De Saulles</p> <p>Light and Shadows (Science@School) by Brian Knapp</p>
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Pupils should be introduced to and be able to discuss the following... Electricity					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 4	N/A	<p>To be able to identify common appliances that run on electricity.</p> <p>To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>To be able to identify whether or not a lamp will light in a simple series circuit,</p>	<p>Electricity</p> <p>Appliances: fridge, freezer, TV, computer, iron, kettle, etc</p> <p>Series circuit</p> <p>Components: battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch</p> <p>Describing words: brighter, duller,</p>	<p>Benjamin Franklin (1706-90). Showed that lightning is caused by electricity.</p> <p>Charles Augustine Coulomb (1736-1806). He invented instruments for measuring the forces between magnets and between charges. The unit for measuring an amount, or</p>	<p>Charging About: The Story of Electricity (Science Works) by Jacqui Bailey and Matthew</p>

		<p>based on whether or not the lamp is part of a complete loop with a battery.</p> <p>To be able to recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>To be able to 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>To be able to set up a simple practical enquiry.</p> <p>To be able to record findings using drawings.</p> <p>To be able to use results to make predictions.</p>	<p>slow, fast, quiet, loud</p> <p>Conductor, insulator</p> <p>Effects of electricity: Light, sound, movement, heat</p> <p>Switches - open, close</p>	<p>charge, of electricity is named after him. One coulomb (symbol <i>C</i>) is the amount of electricity that flows past any point when a current of one amp flows for one second.</p> <p>Alessandro Volta (1745-1827). Invented the first battery. The volt, the unit of electromotive force, is named after him.</p> <p>Andre-Marie Ampere (1775-1836). His studies allowed people to measure the amount of electric current flowing through a circuit. Thus, the current is measured in units called amperes, or amps for short. One amp is a flow of about 6 million million million electrons per second</p>	<p>Lilly</p> <p>The Shocking Story of Electricity (Young Reading (Series 2)) by Anna Claybourne and Martin Chatterton</p>
Year 6	N/A	<p>To be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>To be able to use recognised symbols when representing a simple circuit in a diagram.</p> <p>To be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>To be able to take repeat measurements of data with precision using a data-logger.</p> <p>To be able to explain the degree of trust can be had in results.</p> <p>To be able to plan a fair-test by recognising the control variables.</p> <p>To be able to use predictions to set up fair tests.</p>	<p>Electricity, Volts</p> <p>Series circuit</p> <p>Components: battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch</p> <p>Describing words: brighter, duller, slow, fast, quiet, loud</p> <p>Conductor, insulator</p> <p>Resistance</p> <p>Effects of electricity: Light, sound, movement, heat</p>	<p>Thomas Edison (1847-1931). Inventor of the fuse.</p> <p>Benjamin Franklin (1706-90). Showed that lightning is caused by electricity.</p> <p>Charles Augustine Coulomb (1736-1806). He invented instruments for measuring the forces between magnets and between charges. The unit for measuring an amount, or charge, of electricity is named after him. One coulomb (symbol <i>C</i>) is the amount of electricity that flows past any point when a current of one amp flows for one second.</p> <p>Alessandro Volta (1745-1827). Invented the first battery. The volt, the unit of electromotive force, is named after him.</p> <p>Andre-Marie Ampere (1775-1836). His studies allowed people to measure the amount of electric current flowing through a circuit. Thus, the</p>	<p>Shocking Electricity (Horrible Science) by Nick Arnold and Tony De Saullés</p> <p>Electricity (Eyewitness) by DK</p> <p>Electricity (Essential Physical Science) by Louise Spilsbury and Richard Spilsbury</p>

				current is measured in units called amperes, or amps for short. One amp is a flow of about 6 million million million electrons per second.	
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Pupils should be introduced to and be able to discuss the following... Sound					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 4	N/A	<p>To be able to identify how sounds are made, associating some of them with something vibrating.</p> <p>To be able to recognise that vibrations from a sound travel through a medium to the ear</p> <p>To be able to find patterns between the pitch of a sound and features of the object that produced it.</p> <p>To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>To be able to recognise that sounds get fainter as the distance from the sound source increases.</p> <p>To be able to use a scientific enquiry to answer a question.</p> <p>To be able to set up a simple practical enquiry.</p> <p>To be able to make systematic and careful measurements with a data logger.</p> <p>To be able to report on findings from an enquiry.</p> <p>To be able to identify differences, similarities or changes related to simple scientific ideas.</p> <p>To be able to set up simple fair tests.</p>	<p>Ways to create sound - bang, blow, shake, and pluck</p> <p>Loudness - quiet, quieter, quietest, loud, louder and loudest</p> <p>Pitch - low, lower, lowest, high, higher, and highest</p> <p>Vibrations</p> <p>Source</p>	<p>Robert Boyle (1627- 1691)</p> <p>Ernst Mach (1838-1916). Described how shock waves are formed.</p> <p>Heinrich Hertz (1857-94). The unit of frequency used for all kinds of waves and vibrations is named after him. One Hertz is equal to one vibration per second.</p>	<p>Tabletop Scientist --</p> <p>The Science of Sound: Projects and Experiments with Music and Sound Waves by Parker Steve</p> <p>Sound (Science Around Us) by Sally Hewitt</p> <p>Amazing Science: Sound by Sally Hewitt</p>

Pupils should be introduced to and be able to discuss the following... Earth and Space					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 5	N/A	<p>To be able to describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>To be able to plan a scientific enquiry to answer a question.</p> <p>To be able to describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>To be able to describe the movement of the Moon relative to the Earth.</p> <p>To be able to 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>To be able to report a presentation of an explanation.</p>	<p>Day and night - Earth, axis, rotate</p> <p>Solar system - Star = Sun, Planets = Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto was classified as Dwarf planet in 2006)</p> <p>Phases of the Moon - full moon, gibbous moon, half moon, crescent moon, new moon, waxing ,waning Moon's orbit: 29.5 days, lunar month Orbit, planets, revolve, sphere</p>	<p>Aristarchus (310 – 230 B.C.). He was the first to figure out that the Earth travels around the Sun.</p> <p>Nicolas Copernicus (1473 – 1543). Had the idea that Earth revolves on its axis and the Earth and other planets orbit around the Sun</p> <p>Galileo Galilei (1564 – 1642). Discovered four of Jupiter's moons. In 1609 was the first person to make a study of the skies with a telescope.</p> <p>Aristotle Edwin Hubble (1889– 1953). In 1924 Hubble showed that nebulae (fuzzy light patches in the sky) were distant galaxies. In 1929 he found the speed of galaxy moves away from the Earth depends on its distance from the Earth. If a galaxy is four times as far away as another, it is moving four times as fast. This is Hubble's law.</p> <p>William Huggins. Showed that stars are made up of the same elements that exist on Earth.</p> <p>Cecilia Payne-Gaposchkin (1900– 79). In the 1920's she proved that stars are made mostly of hydrogen.</p> <p>Arthur Eddington (1882– 1944). He was the first to work out what the inside of a star was like.</p> <p>Professor Brian Cox (1968 –)</p>	<p>Earth and Space (Usborne Starting Point Science) by Susan Mayes and Sophy Tahta</p> <p>Earth Space Moon Base Hardcover - by Ben Joel Price (Author)</p> <p>Earth and Space (Internet-linked Library of Science) by L. Howell and Kirsteen Rogers</p>

				Contemporary physicist, presents many BBC programmes) Heidi Hammel (1960 -) Astronomer	
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Pupils should be introduced to and be able to discuss the following... Evolution and inheritance					
	Knowledge:	Skills:	Key Vocabulary:	Influential people:	Significant texts:
Year 6	N/A	<p>To be able to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>To be able to identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>To be able to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>To be able to plan an enquiry that will answer a question</p> <p>To be able to record data in a table.</p> <p>To be able to measure with a data logger.</p>	<p>Evolution, evolve</p> <p>Natural selection</p> <p>Survival</p> <p>Reproduction</p> <p>Offspring, parents, siblings</p> <p>Environment</p> <p>Variation</p> <p>Fossils; ammonites, belemnites, micrasters, etc</p>	<p>Charles Darwin (1809 - 1882) The following video outlines the work of Charles Darwin - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/charles-darwin/index.html</p> <p>Alfred Russel Wallace (1823 - 1913) The following video outlines the work of Alfred Russel Wallace - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/wallace/index.html</p> <p>Richard Owen (1804 - 1882) The following website outlines the work of Richard Owen - http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/richard-owen/index.html</p>	<p>Inheritance and Evolution (Science Essentials - Biology) by Denise Walker</p> <p><u>Evolution</u> by Daniel Loxton and Jim W W Smith</p>