



**CHIVENOR**  
PRIMARY SCHOOL

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# SCIENCE - OVERVIEW

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# Long Term - Science Overview



| Autumn 1      | Rec | Year 1   | Year 2   | Year 3   | Year 4  | Year 5   | Year 6   |
|---------------|-----|--|--|--|---|--|--|
| Themes        |     | Use of Everyday Materials  | Animals Including Humans - Growth and keeping healthy  | Animals Including Humans – What Makes Us? Diet and health.   | Animals Including Humans – Food and Digestion   | Forces   | Electricity  |
| non stat Stat |     | <ul style="list-style-type: none"> <li>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> <li>Distinguish between an object and the material from which it is made.</li> <li>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>Describe the simple physical properties of a variety of everyday materials.</li> </ul> <p>- Explore, name, discuss and raise and answer questions about everyday materials.</p> <p>- Become familiar</p> | <ul style="list-style-type: none"> <li>Understand that animals, including humans, have offspring that grow into adults.</li> <li>Find out about and describe the basic needs of animals, including humans, for survival (water, food, air).</li> </ul> <p>Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene.</p> <p>- Be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans.</p> <p>- The following examples may be</p> | <ul style="list-style-type: none"> <li>Identify that humans and some animals have skeletons and muscles for support, protections and movement.</li> <li>Identify that animals, including humans, need the right type and amount of nutrition, and that they cannot make their own food, they get nutrition from what they eat.</li> </ul> <p>- Continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts</p> | <ul style="list-style-type: none"> <li>Describe the basic functions of the main parts of the digestive system in humans</li> <li>Identify the different teeth in humans and their simple functions.</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <p>- Be introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small</p> | <ul style="list-style-type: none"> <li>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</li> <li>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</li> </ul> <p>- Find out how scientists for example, Galileo Galilei and Isaac Newton helped to</p> | <ul style="list-style-type: none"> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> </ul> <p>- 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>Use recognised symbols when representing a simple circuit in a diagram.</p> |

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|  |  | <p>with the terms;<br/>hard/soft;<br/>stretchy/stiff;<br/>shiny/dull;<br/>rough/smooth;<br/>bendy/not bendy;<br/>waterproof/not<br/>waterproof;<br/>absorbent/not<br/>absorbent;<br/>opaque/transparent.</p> <p>- Explore and experiment with a wide variety of materials – for example: brick, paper, fabrics, elastic, foil.</p> | <p>used as an introduction to reproduction and growth: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep; Baby, toddler, child, teenager, adult.</p> | <p>of the body have special functions.</p> | <p>and large intestine and explore questions that help them to understand their special functions.</p> | <p>develop the theory of gravitation.</p> <p>- Explore falling objects and raise questions about the effects of air resistance.</p> <p>- Explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall.</p> <p>- Experience forces that make things begin to move, get faster or slow down.</p> <p>- Explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel.</p> <p>- Explore the effects of levers, pulleys and simple machines on movement.</p> | <p>- Construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors (Building on their work in Year 4).</p> <p>- Learn how to represent a simple circuit in a diagram using recognised symbols.</p> <p>Note: Pupils are expected to learn only about series circuits, not parallel circuits.</p> <p>Pupils should be taught to take the necessary precautions for working safely with electricity.</p> |
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| <p>Working scientific ally</p> |  | <p>Perform simple tests to explore questions. For example: 'What is the best material for an umbrella?.....for lining a dog's basket?.....for curtains?.....for a bookshelf?.....for a gymnast's leotard?</p> | <p>Observe, through video or first-hand observations and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.</p> | <p>Identify and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons.</p> <p>-Compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat.</p> <p>Research different food groups and how they keep us healthy and design meals based on what they find out.</p> | <p>Comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them.</p> <p>Draw and discuss their ideas about the digestive system and compare them with models or images.</p> | <p>Exploring falling paper cones or cup-cake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective.</p> <p>Explore resistance in water by making and testing boats of different shapes.</p> <p>Design and make products that use levers, pulleys, gears and/or springs and explore their effects.</p> | <p>Systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.</p> |
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| <p>Suggested activities/outcomes</p> |  | <p>‘What is the best material for an umbrella?.....for lining a dog’s basket?.....for curtains?.....for a bookshelf?.....for a gymnast’s leotard?</p> <p>Feely bags to encourage description.</p> | <p>Links to maths - Tables and comparisons of height/weight/shoe size etc.</p> <p>Food plate – what a healthy dinner looks like.....what a poor dinner choice looks like.....</p> <p>Butterfly lifecycle – Insect lore will send out at start of September.</p> | <p>Links to maths to group animals.</p> <p>Label a life-size skeleton with major bone structures.</p> <p>Healthy dinner choices, healthy plates and unhealthy plates. Construct a healthy wrap/dinner.</p> | <p>Construct a basic stomach from a zip-lock bag, mixing food.</p> <p>Look at individual teeth and the functions of each type.</p>   | <p>Exploring falling paper cones or cupcake cases, and designing and making a variety of parachutes, carrying out fair tests to determine which designs are the most effective.</p> <p>Explore resistance in water by making and testing boats of different shapes.</p> <p>Design and make products that use levers, pulleys, gears and/or springs and explore their effects.</p> | <p>Systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.</p> <p><a href="https://www.twinkl.co.uk/resources/science-stem-resources/electricity-science-stem-resources">https://www.twinkl.co.uk/resources/science-stem-resources/electricity-science-stem-resources</a></p> |
| <p>Key vocab</p>                     |  | <p>hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.</p> <p>material brick, paper,</p>                | <p>Survival, offspring, egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep; Baby, toddler, child, teenager, adult.</p>   | <p>Skeleton, muscle, joints, muscles, ribs, backbone, collar bone, Femur, Skull</p>  | <p>Digestive system, Organs, Mouth, Tongue, Salivary glands, Oesophagus, Stomach, Small/large intestine, Enzymes, Function, Teeth; Canine, Incisor, Molar, Nutrients, Energy, Food</p> | <p>Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys, Lever, Cog, Buoyancy, Mechanism, Streamline, Brake, Opposing, Machine</p>   | <p>appliances, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive/negative, terminal, connection, loose connection, short circuit, wire,</p>  |

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|            |  | fabrics, elastic, foil wood, plastic, glass, metal, water, and rock   |   |   | chains, Herbivore, Carnivore, Omnivore, Predator, Prey, Consumer, Producer  |   | crocodile clip, bulb brightness, switch, buzzer, volume, motor, conductor, insulator, voltage, current, resistance, danger, series, circuit  |
| STEM links |  | <a href="https://www.stem.org.uk/resources/community/collection/12725/year-1-everyday-materials">https://www.stem.org.uk/resources/community/collection/12725/year-1-everyday-materials</a> | <a href="https://www.stem.org.uk/resources/community/collection/12727/year-2-animals-including-humans">https://www.stem.org.uk/resources/community/collection/12727/year-2-animals-including-humans</a> | <a href="https://www.stem.org.uk/resources/community/collection/12601/year-3-animals-including-humans">https://www.stem.org.uk/resources/community/collection/12601/year-3-animals-including-humans</a> | <a href="https://www.stem.org.uk/resources/community/collection/12365/year-4-animals-including-humans">https://www.stem.org.uk/resources/community/collection/12365/year-4-animals-including-humans</a> | <a href="https://www.stem.org.uk/resources/community/collection/12696/year-5-forces">https://www.stem.org.uk/resources/community/collection/12696/year-5-forces</a> | <a href="https://www.stem.org.uk/resources/community/collection/12390/year-6-electricity">https://www.stem.org.uk/resources/community/collection/12390/year-6-electricity</a><br><br><a href="https://education.theiet.org/primary/teaching-resources/make-a-doorbell-circuit/">https://education.theiet.org/primary/teaching-resources/make-a-doorbell-circuit/</a> |

| Autumn 2 | Rec | Year 1    | Year 2                         | Year 3   | Year 4           | Year 5               | Year 6 |
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| Themes   |     | Magnetism | Space/ astronomy and the earth | Scientists who have changed the world - Equality Diversity Inclusion | States of Matter | Changes Of Materials | Light  |

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| <p>Non Stat<br/>Stat</p> |  | <ul style="list-style-type: none"> <li>● Compare and group together a variety of everyday materials on the basis of their simple physical properties.             <ul style="list-style-type: none"> <li>● Distinguish between an object and the material from which it is made.</li> <li>● Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>● Describe the simple physical properties of a variety of everyday materials.</li> </ul> </li> <li>- Explore, name, discuss and raise and answer questions about everyday materials.</li> <li>- Become familiar with the terms; hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not</li> </ul> | <ul style="list-style-type: none"> <li>● Introduce the planets. Look at the different planets in the solar system.</li> <li>● Use the idea of the Earth's rotation to explain day and night.</li> <li>● Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>- Learn that the Sun is a star at the centre of our solar system and that it has eight planets – Earth is one of them.</li> <li>- Introduce light sources, including the sun and investigate shadows</li> </ul> <p>Note: Pupils should be warned that it is <b>not safe</b> to look directly at the Sun, even when wearing dark glasses.</p> | <ul style="list-style-type: none"> <li>● Explore the impact of several scientists and their scientific research from around the world.</li> <li>● Explore the wider effect of the scientists' research on modern day.</li> </ul> | <ul style="list-style-type: none"> <li>● Compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>● Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).</li> <li>● Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> <li>- Explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed</li> </ul> | <ul style="list-style-type: none"> <li>● Compare and group together everyday materials on the basis of their properties including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.</li> <li>● Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>● Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>● Give reasons, based on Evidence from comparative and fair tests, for the particular uses of everyday materials, including metals,</li> </ul> | <ul style="list-style-type: none"> <li>● Recognise that light appears to travel in straight lines.             <ul style="list-style-type: none"> <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> <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> </ul> </li> <li>- Exploring the way that light behaves, including light sources, reflection and shadows (Building</li> </ul> |
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|  |  | <p>absorbent;<br/>opaque/transparent.<br/>- Explore and experiment with a wide variety of materials – for example: brick, paper, fabrics, elastic, foil.</p> |  |  | <p>container).</p> <p>- Observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled.</p> <p>Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning.</p> | <p>wood and plastic.</p> <ul style="list-style-type: none"> <li>• Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul> <p>- Build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials, including relating these to what they learnt about magnetism in Year 3 and about electricity in Year 4.</p> | <p>on work completed in Year 3). Discuss what happens and make predictions.</p> |
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|  |  |  |  |  |  | <ul style="list-style-type: none"><li>- Explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes.</li><li>- Explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda.</li><li>- Find out about how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.</li><li>- Observe that some conductors will produce a brighter</li></ul> |  |
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|  |  |  |  |  |  | bulb in a circuit than others and that some materials will feel hotter than others when a heat source is placed against them. |  |
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| <p>Working Scientific ally</p> |  | <p>Ask simple questions and recognise that they can be answered in different ways.</p> <p>Observe closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Identify and classify.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help answer questions.</p> | <p>Compare the planets with each other in relation to size.</p> <p>Construct simple shadow experiments to show shadows are a similar shape to the opaque object used to block the light.</p> |  | <p>Grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party).</p> <p>Research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid.</p> <p>Observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.</p> | <p>Carry out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?'</p> <p>Compare materials in order to make a switch in a circuit.</p> <p>Observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes.</p> <p>Research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers,</p> | <p>Deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works.</p> <p>Investigate the relationship between light sources, objects and shadows by using shadow puppets.</p> <p>Extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).</p> |
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|  |  |  |  |  |  | super-sticky and super-thin materials. |  |
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| <p>Suggested activities/outcomes</p> |  | <p>Play with magnets and explore their properties.</p> <p>Discover what's attracted to them and why.</p> <p>Create games using the magnets and metal objects in the classroom. <a href="https://www.twinkl.co.uk/resource/create-a-magnet-game-stem-activity-au-sc-2764">https://www.twinkl.co.uk/resource/create-a-magnet-game-stem-activity-au-sc-2764</a></p> | <p>Light sources • Relating to the sun identify different light sources including the sun and investigate shadows. Shadows can be investigated using torches on a dull day in the school playground.</p> <p>Light source hunt around school.</p> <p>Planets • Look at the different planets in the solar system and through the questions, get the children to identify the different planets.</p> <p>• Create fact files about a planet of their choice - this could be set as a homework project.</p> <p>Rockets • Use film canisters and get the children to decorate them so they look like rockets. Then outside with adult supervision put in the canister a fizzy tablet</p> | <p>Research scientists such as;</p> <p>Marie Maynard Daly - a biochemist and the first African American woman to obtain a P.H.D. who helped to discover the link between cholesterol and clogged arteries.</p> <p>Sylvia Earle - An American marine biologist raising awareness for the dangers of overfishing and pollution</p> <p>Tu Youyou - A Chinese chemist who is known for discovering an effective anti-malarial drug and Nobel Prize winner.</p> <p>Ben A. Barres - Pioneer neuroscientist and</p> | <p>Explore the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party).</p> <p>Observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or ice melting.</p> | <p>Links to greenwood for solution/dissolving/mixture experimentation, including changes associated by identifying and observing irreversible chemical changes. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating by separating different mixtures.</p> <p>To compare and group together everyday materials on the basis of their thermal conductivity by investigating thermal conductors and insulators</p> <p>To give reasons, based on evidence from comparative and fair tests, for</p> | <p>Create own kaleidoscope.</p> <p>By exploring reflections, the formation of shadows and the mixing of coloured lights.</p> <p>By exploring the refraction of light when passed through different materials, lenses and prisms,</p> <p>Explain how light can be used in a variety of applications.</p> <p>Shadow Theatre</p> |
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|  |  |  | <p>- vitamin c ones will work. Fill with water and put the cap on. Watch the rockets fly! Alter the amount of water and the amount of tablet put in and look at the different effects it has.</p> <p>Create a fact file about one of the planets.<br/> <a href="https://www.stem.org.uk/resources/community/collection/22312/tim-peake-project-activities">https://www.stem.org.uk/resources/community/collection/22312/tim-peake-project-activities</a></p> | <p>advocate of diversity in science.</p> <p>Complete experiments linked to scientists' research and what could have happened if their research didn't happen.</p> <p><a href="https://www.twinkl.co.uk/resource/t-t-29353-astronaut-training-stem-activity">https://www.twinkl.co.uk/resource/t-t-29353-astronaut-training-stem-activity</a></p> <p><a href="https://www.twinkl.co.uk/resource/ks1-women-in-stem-powerpoint-t-sc-2549319">https://www.twinkl.co.uk/resource/ks1-women-in-stem-powerpoint-t-sc-2549319</a></p> |  | <p>the particular uses of everyday materials, including metals, wood and plastic by investigating the best electrical conductors.</p> |  |
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| Key vocab  |  | Magnetic, non-magnetic, metal, materials, properties  | Earth, Sun, Moon, Star, Planet names, planet,   | Scientist, research, impact, (specific vocabulary associated with each scientist), biologist, physicist, chemist, | Solid, Liquid, Gas, Evaporation, Condensation, Particles, Vibration, Temperature, Freezing, Heating, Melting, Water cycle, Materials, Temperature, Thermometer                    | Soluble, Insoluble, Transparent, Conductivity, Magnetic, Filtration, Evaporation, Dissolving, Mixture, Solution, Absorbent, Permeable, Malleable, Reversible, Irreversible, Chemical reaction, Carbon dioxide  | light travels, straight, reflect, reflection, light source, object, shadows, mirrors, periscope, rainbow, filters   |
| STEM links |  | <a href="https://www.twinkl.co.uk/resource/create-a-magnet-game-stem-activity-au-sc-2764">https://www.twinkl.co.uk/resource/create-a-magnet-game-stem-activity-au-sc-2764</a> | <a href="https://www.stem.org.uk/resources/community/collection/124233/space">https://www.stem.org.uk/resources/community/collection/124233/space</a> | ..  | <a href="https://www.stem.org.uk/resources/community/collection/12345/year-4-states-matter">https://www.stem.org.uk/resources/community/collection/12345/year-4-states-matter</a> | <a href="https://www.stem.org.uk/resources/community/collection/12742/year-5-properties-materials">https://www.stem.org.uk/resources/community/collection/12742/year-5-properties-materials</a><br><br><a href="https://www.stem.org.uk/resources/community/collection/14764/year-5-changes-state">https://www.stem.org.uk/resources/community/collection/14764/year-5-changes-state</a> | <a href="https://www.stem.org.uk/resources/community/collection/12741/year-6-light">https://www.stem.org.uk/resources/community/collection/12741/year-6-light</a> |

| Spring 1 | Rec | Year 1           | Year 2             | Year 3 | Year 4                          | Year 5          | Year 6                            |
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| Themes   |     | Seasonal Changes | Everyday Materials | Rocks  | Living Things And Their Habitat | Earth and Space | Animals Including Humans – Health |

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| <p>Non Stat</p> <p>Stat</p> |  | <ul style="list-style-type: none"> <li>● Observe changes across the 4 seasons</li> <li>● Observe and describe weather associated with the seasons and how day length varies.</li> </ul> <p>Observe and task about changes in the weather and the seasons.</p> <p>Children should be warned not to look directly at the sun, even when wearing dark sunglasses.</p> | <ul style="list-style-type: none"> <li>● Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard, for a particular use.</li> <li>● Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.</li> </ul> <p>- Identify and discuss the uses of different everyday materials so they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table; 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</p> | <ul style="list-style-type: none"> <li>● Compare and group together different kinds of rocks on the basis of their appearance and physical properties.</li> <li>● Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>● Recognise that soils are made from rocks and organic material.</li> </ul> <p>- Explore different kinds of rocks and soils, including those in the local environment. (linked with Geography)</p> | <ul style="list-style-type: none"> <li>● Recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul> <p>- Recognise that living things can be grouped in a variety of ways.</p> <p>- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>- Use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat.</p> <p>- Identify how the habitat changes throughout the year.</p> <p>- Explore possible ways of grouping a</p> | <ul style="list-style-type: none"> <li>● Describe the movement of the Earth and other planets, relative to the sun in the solar system.</li> <li>● Describe the movement of the Moon relative to the Earth.</li> <li>● Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> <li>● Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>● Find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.</li> </ul> | <p>- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <ul style="list-style-type: none"> <li>● Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> </ul> <p>- describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>- Build on learning from Years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions.</p> |
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# Long Term - Science Overview



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|  |  |  | <p>but not normally from glass).</p> <ul style="list-style-type: none"> <li>- Think about the properties of materials and why that makes them suitable/not suitable for a particular purpose.</li> <li>- Be encouraged to think about unusual and creative uses for everyday materials.</li> </ul> |  | <p>wide selection of living things that include animals and flowering plants and non-flowering plants. Animals could be grouped such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses.</p> <ul style="list-style-type: none"> <li>- Explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.</li> </ul> | <ul style="list-style-type: none"> <li>- Be introduced to a model of the Sun and Earth that enables them to explain day and night.</li> <li>- Learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006).</li> <li>- Understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).</li> </ul> | <ul style="list-style-type: none"> <li>- Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body.</li> </ul> |
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# Long Term - Science Overview



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|  |  |  |  |  |  | <p>Note: Pupils should be warned that it is <b>not safe</b> to look directly at the Sun, even when wearing dark glasses.</p> |  |
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# Long Term - Science Overview



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| <p>Working Scientifically</p> |  | <p>Make tables and charts about the weather; and make displays of what happens in the world around them, including day length and as the seasons change.</p> | <p>Compare the uses of everyday materials in and around the school with materials found in other places (at home, journey to school, on visits, and in stories, rhymes and songs).</p> <p>Observing closely, identifying and classifying the uses of different materials, and recording their observations.</p> | <p>Observe rocks, including those used in buildings and gravestones, and explore how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them.</p> <p>Research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed.</p> <p>Explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur</p> | <p>Use and make simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.</p> | <p>Compare the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.</p> | <p>Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p> |
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# Long Term - Science Overview



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|  |  |  |  | <p>when they are in water.</p> <p>Raise and answer questions about the way soils are formed.</p> |  |  |  |
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# Long Term - Science Overview



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| <p>Suggested activities /outcomes.</p> |  | <p><a href="https://www.stem.org.uk/resources/elibrary/resource/35383/seasonal-changes">https://www.stem.org.uk/resources/elibrary/resource/35383/seasonal-changes</a></p> <p>Weather station measuring, rain collection, wind speed.</p> <p>Describe how things change between seasons.</p> <p>Describe what happens in summer and how to stay safe in the sun.</p> <p>Spring 'discovery' walk.</p> <p>Suggest answers about how daylight hours vary</p> | <p>Find out about people who have developed useful new materials – John Dunlop, Charles Macintosh or John McAdam.</p> <p>Construct experiments for testing materials for best use.</p> <p>Keep an egg safe when dropped, keep teddy dry, best material to be used for a firebucket, etc.</p> | <p>Creating rocks with sweets to show the layers.</p> <p>Compare different kinds of rocks based on their appearance.</p> <p>Group together different kinds of rocks on the basis of their simple physical properties</p> <p>Eplain Mary Anning's contribution to palaeontology.</p> <p>Investigate the permeability of different soils.</p> | <p>Gathering, recording, classifying and presenting data in a variety of ways.</p> <p>Sorting living things into a range of groups, generating questions to sort vertebrates in a classification key.</p> <p>Use keys to identify invertebrates found in the local environment.</p> <p>Identifying changes and dangers in the local habitat.</p> <p>Recording observations on a map and in a table.</p> <p>Learning about environmental dangers and endangered species.</p> <p>Writing about and orally presenting</p> | <p><a href="https://www.bbc.co.uk/teach/live-lessons/space-live-lesson/zbt3vwx">https://www.bbc.co.uk/teach/live-lessons/space-live-lesson/zbt3vwx</a></p> <p><a href="https://www.stem.org.uk/resources/elibrary/resource/25900/international-space-station-iss-education-kit-primary">https://www.stem.org.uk/resources/elibrary/resource/25900/international-space-station-iss-education-kit-primary</a></p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of how ideas changed from a flat earth view.</p> <p>Examine the geocentric and heliocentric theories.</p> <p>Describe the movement of the Moon relative to the Earth by explaining how the Moon orbits the Earth.</p> | <p>Pedometer measures</p> <p>Effect of exercise on heart –rate. Use stethoscopes.</p> <p>Use scientific models to explore the cardiovascular system in humans. Create own 3D model.</p> <p>Create your own blood to demonstrate the four parts – twinkl.</p> <p>Recognise the effects of drugs and alcohol on the body.</p> |
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# Long Term - Science Overview



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|           |  |   |   |   | findings from research.  |   |   |
| Key vocab |  | Season, autumn, winter, spring, summer, cold, warm, hot, sunny, rain, wind, frost, snow, cloud, question, answer, equipment, Weather, Day, Week, Month, Year, Temperature, Thermometer. | Plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber; suitable/unsuitable, use/useful, hard/soft, stretchy/stiff, rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. | rock, stone, pebble, boulder, grain, crystals, layers, hard/ soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, limestone, slate, soil, peat, sandy/chalk/clay soil | Vertebrates, Fish, Amphibians, Reptiles, Mammals, Birds, Invertebrates, Insects, Spiders, Crustaceans, Insects, Molluscs, Environment, Habitats, Classification, Endangered, Protection, Species | Earth, Sun, Moon, Axis, Rotation, Phases, of the moon, Time zone, Constellation, Star, Planet, Season, Northern hemisphere, Southern hemisphere | circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle |

# Long Term - Science Overview



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| STEM links |  | <a href="https://www.stem.org.uk/resources/community/collection/454849/year-1-earth-seasons">https://www.stem.org.uk/resources/community/collection/454849/year-1-earth-seasons</a> | <a href="https://www.stem.org.uk/resources/community/collection/12724/year-2-uses-everyday-materials">https://www.stem.org.uk/resources/community/collection/12724/year-2-uses-everyday-materials</a> | <a href="https://www.stem.org.uk/resources/community/collection/12367/year-3-rocks">https://www.stem.org.uk/resources/community/collection/12367/year-3-rocks</a> | <a href="https://www.stem.org.uk/resources/community/collection/12774/year-4-living-things-and-their-habitats">https://www.stem.org.uk/resources/community/collection/12774/year-4-living-things-and-their-habitats</a> | <a href="https://www.stem.org.uk/resources/community/collection/12347/year-5-earth-and-space">https://www.stem.org.uk/resources/community/collection/12347/year-5-earth-and-space</a> | <a href="https://www.stem.org.uk/resources/community/collection/13109/year-6-animals-including-humans">https://www.stem.org.uk/resources/community/collection/13109/year-6-animals-including-humans</a> |
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| Spring 2 | Rec | Year 1                              | Year 2      | Year 3 | Year 4      | Year 5                         | Year 6                    |
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| Theme    |     | Animals Including Humans – About Me | Electricity | Light  | Classifying | Geology ( to link with rivers) | Evolution And Inheritance |

# Long Term - Science Overview



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| <p>Non Stat<br/>Stat</p> |  | <ul style="list-style-type: none"> <li>● Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul> <p>Have plenty of opportunities to learn the names of the main body parts (including head, neck arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes.</p> | <ul style="list-style-type: none"> <li>- Understand that many everyday appliances require electricity.</li> <li>- Group appliances into categories.</li> <li>- Electricity can be dangerous and appliances must be used safely. Understand that some appliances are less dangerous than others.</li> <li>- Know that circuits will not work if there is no battery present or there is a break in the circuit.</li> </ul> | <ul style="list-style-type: none"> <li>● Recognise that shadows are formed when the light from a light source is blocked by a solid object.</li> <li>● Notice that light is reflected from surfaces.</li> <li>● Recognise that they need light in order to see things and that dark is the absence of light,</li> <li>● Recognise that light from the sun can be dangerous and there are ways to protect the eyes.</li> <li>- Find patterns in the ways that the size of shadows change.</li> <li>- Explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light</li> </ul> | <ul style="list-style-type: none"> <li>● Recognise that living things can be grouped in a variety of ways.</li> <li>● Explore and use classification keys to help group, identify and name a variety of living things in their local and wider Environment.</li> </ul> | <ul style="list-style-type: none"> <li>♣ Compare and group together different kinds of rocks on the basis of their observed appearance, type and physical properties.</li> <li>♣ Describe in simple terms how weathering and erosion (by wind and water – linked to rivers) as well as deposition occurs.</li> <li>♣ Recognise how different rock types are created.</li> </ul> | <ul style="list-style-type: none"> <li>● Identify how animals and plants are adapted to suit their environment in different ways, and that adaptation may lead to evolution.</li> <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 that offspring normally vary and are not identical to their parents.</li> <li>- Find out more about how living</li> </ul> |
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# Long Term - Science Overview



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|  |  |  |  | <p>behaves.</p> <p>Think about why it is important to protect their eyes from bright lights.</p> <p>Pupils should be warned that it is <b>not safe</b> to look directly at the Sun, even when wearing dark glasses.</p> <p>Look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.</p> |  |  | <p>things on earth have changed over time (Building on what they learned about fossils in the topic on rocks in year 3,)</p> <p>- Be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles.</p> <p>- Appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks</p> |
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# Long Term - Science Overview



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|  |  |  |  |  |  |  | <p>got longer, or the development of insulating fur on the arctic fox.</p> <p>- Find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.</p> <p>Note: At this stage, pupils are not expected to understand how genes and chromosomes work.</p> |
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# Long Term - Science Overview



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| <p>Working Scientifically</p> |  |  | <p>Raise electrical questions about items used in the classroom and at home.</p> <p>Create simple circuits and understand that electricity cannot pass if there is a break in the circuit.</p> | <p>Look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</p> |  |  | <p>Observe and raise questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels.</p> <p>Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p> |
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# Long Term - Science Overview



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| <p>Suggested activities/outcomes.</p> |  | <p>Outline a pupil/teacher to label and name parts of the body.</p> <p>Name the five senses and to perform simple tests to find out more about them.</p> | <p>Children will explore a variety of classroom objects, investigating whether they use electricity of not. Grouping the objects into categories, i.e. stereo and speakers produce noise, lights and, torches, lamps produce light, laptops and TV's produce images etc</p> <p>Watch a video regarding safety with electricity and to create a poster reflecting what they have learned.</p> <p>Discuss batteries with children, developing their understanding that batteries act as a safer source of electricity.</p> <p>Create simple electrical circuits, with a lightbulb.<br/> <a href="https://www.stem.org.uk/resources/elibrary/resource/30647/things-use-electricity">https://www.stem.org.uk/resources/elibrary/resource/30647/things-use-electricity</a></p> | <p>Feely bag activity to remove eyesight – as if absence of light.</p> <p>Investigate which surfaces reflect light.</p> <p>Notice how light is reflected from surfaces by playing mirror games.</p> <p>Designing and advertising a pair of sunglasses or a sun hat.</p> <p>Investigating the best material for curtains for a baby's bedroom.</p> <p>Investigate what happens when you change the distance between the object and the light source.</p> | <p>Explore the local environment, classifying living things into specified groups. For example animal types, plant types, lived/never lived/not alive, colour, size, predator/prey, vertebrates/invertebrates.</p> <p>Create an animal flow chart</p> | <p>Igneous, metamorphic and sedimentary rock comparisons.</p> <p>Understanding the difference between weathering and erosion.</p> <p>AR videos showing erosion effect; oxbow lakes; meanders.</p> <p>Erosion experiments. (slope erosion with soil,<br/> <a href="https://www.youtube.com/watch?v=-MFLgtti51I">https://www.youtube.com/watch?v=-MFLgtti51I</a></p> <p>Weather experiments including rain collection and wind speed. How does this effect river flow/weathering/erosion?<br/> <a href="https://www.sciencebuddies.org">https://www.sciencebuddies.org</a></p> | <p>comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels.</p> <p>Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p> |
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# Long Term - Science Overview



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|            |  |   |  |   |   | <a href="#">/stem-activities/build-river-model</a>  |   |
| Key vocab  |  | Head, Body, eyes, elbows, ears, mouth, teeth, leg, hair, knees, face, neck, arms  | appliance, plug, electricity, dangerous, batteries, circuit  | light, light source, dark, absence of light, transparent, translucent, opaque, shiny/matt, surface, shadow, reflect(ive), mirror, sunlight, dangerous             | Organisms, processes, respiration, sensitivity, reproduction, excretion, habitat, natural/man-made, environment, endangered species, extinct, classification, vertebrates, invertebrates, specimen, characteristics     | life<br>Estuary, mouth, source, meander, waterfall, erosion, weathering, deposition, tributary, ox bow lake, delta, stream, Amazon, Nile              | evolution, suited/ suitable, adapted/ adaptation, offspring, characteristics, vary/ variation, inherit/ inheritance, fossils  |
| STEM links |  | <a href="https://www.stem.org.uk/resources/elibrary/resource/35325/animals-including-humans-ourselves">https://www.stem.org.uk/resources/elibrary/resource/35325/animals-including-humans-ourselves</a> | Energy stick - <a href="https://www.sciencefix.co.uk/2019/05/teaching-circuits-with-an-energy-stick/">https://www.sciencefix.co.uk/2019/05/teaching-circuits-with-an-energy-stick/</a> | <a href="https://www.stem.org.uk/resources/community/collection/12719/year-3-light">https://www.stem.org.uk/resources/community/collection/12719/year-3-light</a> | <a href="https://www.stem.org.uk/resources/community/collection/12774/year-4-living-things-and-their-habitats">https://www.stem.org.uk/resources/community/collection/12774/year-4-living-things-and-their-habitats</a> | <a href="https://www.stem.org.uk/resources/community/collection/26663/rivers">https://www.stem.org.uk/resources/community/collection/26663/rivers</a> | <a href="https://www.stem.org.uk/resources/community/collection/12648/year-6-evolution-and-inheritance">https://www.stem.org.uk/resources/community/collection/12648/year-6-evolution-and-inheritance</a> |

# Long Term - Science Overview



| Summer 1 | Rec | Year 1                   | Year 2                           | Year 3             | Year 4 | Year 5  | Year 6  |
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| Themes   |     | Animals including humans | Living Things And Their Habitats | Forces And Magnets | Sound  | Animals Including Humans – The Human Life Cycle | Living Things And Their Habitats - Classification |

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| <p>Non Stat<br/>Stat</p> |  | <ul style="list-style-type: none"> <li>● Identify and name a variety of common animals including fish, amphibious, reptiles, birds and mammals.</li> <li>● Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).</li> <li>● Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> </ul> <p>Use the local environment throughout the year to explore and answer questions about animals in their habitat.</p> <p>Understand how to take care of animals taken from their local</p> | <ul style="list-style-type: none"> <li>● Explore the differences between things that are living, dead and things that have never been alive.</li> <li>● Identify and name a variety of plants and animals in their habitats, including Micro-habitats.</li> <li>● Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</li> </ul> <p>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>Be introduced to the idea that all living things have certain characteristics that are essential for keeping</p> | <ul style="list-style-type: none"> <li>● 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.</li> <li>● Observe how magnets attract or repel each other and attract some materials and not others.</li> </ul> <p>- describe magnets as having two poles.</p> <p>- predict whether two magnets will attract or repel each other; depending on which poles are facing.</p> <ul style="list-style-type: none"> <li>● Compare how things move on different surfaces.</li> <li>● Notice that some forces need contact between two objects but magnetic forces can work at a distance</li> </ul> <p>Observe that magnetic forces can act without</p> | <ul style="list-style-type: none"> <li>● Recognise that sounds get fainter as the distance from the source increases.</li> <li>● Identify how sounds are made, associating some of them with something vibrating.</li> <li>● Find patterns between the pitch of a sound and features of the object that produced it.</li> <li>● Find patterns between the volume of a sound and the strength of vibrations that produced it.</li> <li>● Recognise that vibrations from sounds travel through a medium to</li> </ul> | <ul style="list-style-type: none"> <li>● Describe the changes as humans develop to old age.</li> </ul> <p>- Draw a timeline to indicate stages in the growth and development of humans.</p> <p>- Learn about the changes experienced in puberty.</p> | <ul style="list-style-type: none"> <li>● Give reasons for classifying plants and animals based on specific characteristics.</li> <li>● Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</li> </ul> <p>- Look at the classification system in more detail (building on learning about grouping living things in Year 4).</p> |
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|  |  | <p>environment and the need to return them safely after study.</p> <p>Become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets.</p> | <p>them alive.</p> <p>Raise and answer questions that help them to become familiar with the life processes that are common in all living things.</p> <p>Be introduced to the term habitat (natural environment) and micro-habitat (a very small habitat such as woodlice under stones, logs or leaf litter).</p> <p>Raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as food and shelter for animals.</p> <p>Compare animals in familiar habitats with animals found in less familiar habitats, such as on the seashore, in woodland, in the ocean, in the</p> | <p>direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing).</p> <p>Explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe).</p> | <p>the ear.</p> <p>- Explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways.</p> | <p>- Be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided.</p> <p>- Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals).</p> <p>- Discuss reasons why living things are placed in one group and not another.</p> <p>- Find out about the significance of the work of scientists such as Carl</p> |
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# Long Term - Science Overview



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|  |  |  | rainforest. |  |  |  | Linnaeus, a pioneer of classification. |
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| <p>Working Scientifically</p> |  | <p>Using observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.</p> | <p>Sort and classify things according to whether they are living, dead or were never alive, recording findings using charts describing how they decided to place things.</p> <p>Explore questions such as 'is a flame alive? Is a deciduous tree dead in winter?'</p> <p>Construct simple food chains that include humans.</p> <p>Describe conditions in different habitats and micro- habitats.</p> | <p>Compare how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers to their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.</p> | <p>Find patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses.</p> <p>Pupils might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound.</p> <p>Pupils could make and play their own instruments by using what they have found out about pitch and</p> | <p>Researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.</p> | <p>Use classification systems and keys to identify some animals and plants in the immediate environment</p> <p>Research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</p> |
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| <p>Suggested activities/outcomes.</p> |  | <p>group animals according to what they eat.</p> <p>Use senses to compare different textures, sounds and smells.</p> <p>Create an imaginary pet.</p> | <p>Sort and classify things according to:<br/>- whether they are living, dead or were never alive.</p> <p>- recording findings using charts describing how they decided to place things.</p> <p>Explore questions such as 'is a flame alive? Is a deciduous tree dead in winter?'</p> <p>Construct simple food chains that include humans and other predators..</p> <p>Describe conditions in different habitats and micro- habitats.</p> <p><a href="https://www.stem.org.uk/resources/elibrary/resource/440972/minibeast-trackers">https://www.stem.org.uk/resources/elibrary/resource/440972/minibeast-trackers</a></p> | <p>Compare how different things move and grouping them;</p> <p>raise questions and carry out tests to find out how far things move on different surfaces and gather and record data to find answers to their questions.</p> <p>explore the strengths of different magnets and find a fair way to compare them. look for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another and then identify how these properties make magnets useful in everyday items and suggest creative uses for different magnets.</p> <p>Sort materials into those that are magnetic and those that are not.</p> | <p>Find patterns, similarities and differences in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses.</p> <p>Create earmuffs from a variety of different materials to investigate which provides the best insulation against sound.</p> <p>Tuning forks</p> <p>Stethoscopes</p> <p>Pupils could make and play their</p> | <p>Researching and compare the gestation periods of animals and then compare with humans</p> <p>Find out and record the length and mass of a baby as it grows.</p> <p>Is there a correlation between height and age of children in the class?</p> | <p>•Sort and group animals based on their features, using examples as a guide.</p> <p>Describe Carl Linnaeus and his development of his classification system.</p> <p>Place animals into given groups based on certain characteristic</p> <p>Exploring unusual creatures and design own curious creature.</p> <p>Set up an investigation into harmful</p> |
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|           |  |   |   | <a href="https://www.stem.org.uk/resources/elibrary/resource/459543/magnetic-fun-and-games">https://www.stem.org.uk/resources/elibrary/resource/459543/magnetic-fun-and-games</a>  | own instruments by using what they have found out about pitch and volume - Link to DT.   |   | microorganisms.   |
| Key vocab |  | Common animals; fish amphibians reptiles birds mammals pets. Carnivores; cat, dog, lion, tiger, fox, shark, killer whale, eagle, hawk, snake, tyrannosaurus rex. Herbivores; cow, hamster, guinea pig, tortoise, triceratops. Omnivores; badger, human, bear, chickens.<br><br>Head, body, eyes, tail, wing, claw, fin, scales, feathers, Fur, Beak, Paws, hooves | Living, dead, never alive, habitats, micro-habitats, food, food chain, sun, grass, cow, human, alive, healthy, logs, leaf litter, stony path, under bushes, shelter, seashore, woodland, ocean, rainforest, conditions; hot/warm/cold, dry/damp/wet, bright/shade/dark. | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles; north pole, south pole. | Volume<br>Vibration<br>Wave<br>Pitch<br>Tone<br>Speaker<br>Distance<br>Travels<br>Highest<br>Lowest<br>Sound source<br>Produce | Foetus<br>Embryo<br>Womb<br>Gestation<br>Baby<br>Toddler<br>Teenager<br>Elderly<br>Growth<br>Development<br>Puberty | organism<br>micro-organism<br>fungus<br>mushrooms<br>classification keys<br>environment<br>fish<br>amphibians<br>reptiles<br>birds<br>mammals<br>vertebrates<br>invertebrates |

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| STEM links |  | <a href="https://www.stem.org.uk/resources/eli-brary/resource/459520/people-and-their-pets">https://www.stem.org.uk/resources/eli-brary/resource/459520/people-and-their-pets</a><br><br><a href="https://www.stem.org.uk/resources/eli-brary/resource/440972/minibeast-trackers">https://www.stem.org.uk/resources/eli-brary/resource/440972/minibeast-trackers</a> | <a href="https://www.stem.org.uk/resources/community/collection/12723/year-2-living-things-and-their-habitats">https://www.stem.org.uk/resources/community/collection/12723/year-2-living-things-and-their-habitats</a> | <a href="https://www.stem.org.uk/resources/community/collection/12391/year-3-forces-and-magnets">https://www.stem.org.uk/resources/community/collection/12391/year-3-forces-and-magnets</a> | <a href="https://www.stem.org.uk/resources/community/collection/12746/year-4-sound">https://www.stem.org.uk/resources/community/collection/12746/year-4-sound</a> | <a href="https://www.stem.org.uk/resources/community/collection/13293/year-5-animals-including-humans">https://www.stem.org.uk/resources/community/collection/13293/year-5-animals-including-humans</a> | <a href="https://www.stem.org.uk/resources/community/collection/12740/year-6-all-living-things">https://www.stem.org.uk/resources/community/collection/12740/year-6-all-living-things</a> |
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| Summer 2 | Rec | Year 1 | Year 2                   | Year 3              | Year 4      | Year 5                           | Year 6                               |
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| Themes   |     | Plants | Plants – Growth And Care | Plants – Life Cycle | Electricity | Living Things and Their Habitats | Animals Including Humans – The Heart |

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| <p>Non Stat<br/>Stat</p> |  | <ul style="list-style-type: none"> <li>● Identify and describe the basic structure of a variety of common flowering plants, including trees</li> <li>● Identify and describe the basic structure of a variety of common flowering plants including trees</li> </ul> <p>Become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem).</p> <p>Use the local environment throughout the year to explore and answer questions about plants growing in their habitat.</p> <p>Observe the growth of flowers and vegetables that they</p> | <ul style="list-style-type: none"> <li>● Observe and describe how seeds and bulbs grow into mature plants.</li> <li>● Describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul> <p>Use the local environment throughout the year to observe how different plants grow.</p> <p>Be introduced to the requirements of plants for germination, growth and survival,</p> <p>Be introduced to the process of reproduction and growth in plants. – seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.</p> | <ul style="list-style-type: none"> <li>● Explore the parts that flowers play in the life cycle of flowering plants; including pollination, seed formation and seed dispersal.</li> <li>● Identify and describe the functions of different parts of flowering plants, including roots, stem/trunk, leaves, and flowers.</li> </ul> <p>- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.</p> <p>- Investigate the way in which water is transported within plants.</p> <p>Be introduced to the relationship between structure and function: the idea that every part has a job to do.<br/>Explore questions</p> | <ul style="list-style-type: none"> <li>● Construct a simple series electric circuit, identifying and naming the basic parts, including cells wires, bulbs, switches, and buzzers.</li> <li>● Identify common appliances that run on electricity.</li> <li>● Recognise some common conductors and insulators and associate metals with being good conductors.</li> <li>● Identify whether or not a lamp will light in a simple series circuit based on whether or not the lamp is part of a complete loop with a battery.</li> </ul> | <ul style="list-style-type: none"> <li>● Describe the life process of reproduction in some plants and animals.</li> <li>● Describe the differences in the life cycles of a mammal, amphibian, insect and bird.</li> </ul> <p>- Study and raise questions about their local environment throughout the year.</p> <p>- Observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment.</p> <p>- Find out about the work of naturalists and animal behaviourists,</p> | <ul style="list-style-type: none"> <li>● Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>● Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function.</li> </ul> <p>-Build on learning from Years 3 and 4 about how the circulatory system enables the body to function.</p> |
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|  |  | <p>have planted.</p> |  | <p>that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction.</p> <p>Introduce the idea that plants can make their own food, but at this stage pupils <b>do not</b> need to understand how this happens.</p> | <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Pupils should be taught about precautions for working safely with electricity.</p> <p>- Construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices.</p> <p>- Draw the circuit as a pictorial</p> | <p>for example, David Attenborough and Jane Goodall.</p> <p>- Find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals.</p> |  |
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|  |  |  |  |  | <p>representation , not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6.</p> <p>Note: Pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage.</p> |  |  |
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| <p>Working Scientifically</p> |  | <p>Observe closely, perhaps using magnifying glasses, comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees.</p> <p>Keep records of how plants have changed over time, for example leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.</p> | <p>Observe and record, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up comparative tests to show that plants need light and water to stay healthy.</p> | <p>Compare the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed.</p> <p>They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.</p> | <p>Observe patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p> | <p>Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences.</p> <p>Try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.</p> <p>- Observe changes in an animal over a period of time</p> | <p>Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p> <p>Compare lifestyles to effects on the circulatory system.</p> |
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|  |  |  |  |  |  | (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow. |  |
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| <p>Suggested activities/outcomes.</p> |  | <p>Observe, describe and compare plants, seeds and bulbs using magnifying glasses.</p> <p>Name and compare the parts of plants.</p> <p>Identify and name some common trees during a walk in the local environment.</p> <p>Name, sort and compare some common fruit and vegetable plants.</p> | <p>Design and set up a test to find out what plants need to stay healthy.</p> <p>Explain what plants need to grow and stay healthy.</p> <p>Describe what happens if plants don't get all the things they need.</p> <p>Look closely at the parts of a seed that will grow into a plant and explain how it will germinate.</p> <p>Explain how plants are suited to their habitats.</p> | <p>Identify the different parts of flowering plants.</p> <p>Predict what will happen in an investigation.</p> <p>Set up an investigation to find out what plants need to grow well.</p> <p>Make observations.</p> <p>Present the results of my investigation using scientific language.</p> <p>Identify the main stages of the life cycle of flowering plants.</p> <p>Investigate how water is transported in plants.</p> <p>Order the stages of the life cycle of a flowering plant.</p> | <p>Classify and present data, identifying common appliances that run on electricity.</p> <p>Investigate which materials are electrical conductors or insulators.</p> <p>Identify circuit components and build working circuits.</p> <p>Investigate whether circuits are complete or incomplete.</p> <p>Use results to draw simple conclusions.</p> <p>Explain how a switch works in a circuit, build switches and report my findings.</p> | <p>Exploring the life cycles of mammals in different habitats.</p> <p>Describe the life process of reproduction in some plants and animals by exploring Jane Goodall's work with chimpanzees.</p> <p>Describe the differences in the life cycles of an amphibian and an insect by exploring complete and incomplete metamorphosis.</p> <p>Compare different life cycles, including birds.</p> <p>Understand sexual and asexual reproduction in plants.</p> | <p><a href="https://www.stem.org.uk/resources/community/collection/143421/human-circulatory-system">https://www.stem.org.uk/resources/community/collection/143421/human-circulatory-system</a></p> <p><a href="https://www.steampoweredfamily.com/heart-model-heart-stem/">https://www.steampoweredfamily.com/heart-model-heart-stem/</a></p> <p><a href="https://www.stem.org.uk/elibrary/resource/34279">https://www.stem.org.uk/elibrary/resource/34279</a></p> <p>Create working model of heart – link to previous cardio-vascular system learning.</p> <p>Use models to investigate features and names of parts of the heart.</p> |
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| Key vocab  |  | Leaf, petal, stem, roots, blossom, fruit, berry, stalk, bud, seed, trunk, branch<br>Names of common flowers and plants (including trees) in the local area.         | Leaf, petal, stem, roots, blossom, fruit, berry, stalk, bud, seed, trunk, branch<br>Names of common flowers and plants (including trees) in the local area, light, shade, sun, warm, cool, water, grow, healthy, bulb | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal                                 | Components<br>Cells Wires<br>Bulbs<br>Switches<br>Buzzers<br>Battery<br>Circuit Series<br>Conductors<br>Insulators<br>Appliances<br>Function<br>Factors                       | Mammal<br>Reproduction<br>Insect<br>Amphibian Bird<br>Fish Vertebrate<br>Invertebrate<br>Omnivore<br>Herbivore<br>Carnivore<br>offspring<br>Species   | Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle                  |
| STEM links |  | <a href="https://www.stem.org.uk/resources/community/collection/12534/year-1-plants">https://www.stem.org.uk/resources/community/collection/12534/year-1-plants</a> | <a href="https://www.stem.org.uk/resources/community/collection/13299/year-2-plants">https://www.stem.org.uk/resources/community/collection/13299/year-2-plants</a><br><br>Ready, Steady, Grow! STEM.                 | <a href="https://www.stem.org.uk/resources/community/collection/12535/year-3-plants">https://www.stem.org.uk/resources/community/collection/12535/year-3-plants</a> | <a href="https://www.stem.org.uk/resources/community/collection/12388/year-4-electricity">https://www.stem.org.uk/resources/community/collection/12388/year-4-electricity</a> | <a href="https://www.stem.org.uk/resources/community/collection/12775/year-5-living-things-and-their-habitats">https://www.stem.org.uk/resources/community/collection/12775/year-5-living-things-and-their-habitats</a> | <a href="https://www.stem.org.uk/resources/community/collection/13109/year-6-animals-including-humans">https://www.stem.org.uk/resources/community/collection/13109/year-6-animals-including-humans</a> |