

Magdalen Gates Primary School

Science

2023/2024



Magdalen Gates Primary School Science curriculum

	Autumn 1- Community	Autumn 2- Change and Progress	Spring 1- Exploration and Discovery	Spring 2- Technological advancement	Summer 1- Climate and sustainability	Summer 2- Conflict and Power
EYFS	<p>Animals including humans</p> <p>Why can't people fly?</p>	<p>Materials, including changing materials</p> <p>How can we change what soup looks like?</p>	<p>Animals excluding humans</p> <p>Which is the best home for the bears?</p>	<p>Living things and their habitats</p> <p>Who lives in our outdoor area?</p>	<p>Earth and Space</p> <p>Which rocket is the best?</p>	<p>Forces</p> <p>Does rubbish float?</p>
<p>Humans throughout the year in PSED</p> <p>Electricity throughout the year in Computing</p> <p>Living things and their habitats throughout the year in outdoor provision</p>						
Year 1	<p>Animals including humans</p> <p>How are animals different from each other?</p> <p>NC objectives:</p> <p>Key learning: Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them. Animals eat certain things - some eat other animals, some eat plants, some eat</p>	<p>Animals including humans</p> <p>How do my five senses help me?</p> <p>NC objectives:</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Key learning Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and</p>	<p>Everyday materials</p> <p>Can I describe what objects are made of?</p> <p>NC objectives:</p> <p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group</p>	<p>Super scientist study</p> <p>John Dunlop</p>	<p>Plants</p> <p>What are the characteristics of plants?</p> <p>NC objectives:</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Key learning</p> <p>There are many plants which all have specific names.</p>	

<p>both plants and animals.</p> <p>Working Scientifically</p> <p>TAPS - Animal Classification</p> <p>Review: Identify and Classify</p>	<p>smelling. These senses are linked to particular parts of the body.</p> <p>Working Scientifically</p> <p>TAPS Review: Use observations and ideas to suggest answers to questions Body parts</p>	<p>together a variety of everyday materials on the basis of their simple physical properties.</p> <p>Key learning</p> <p>All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons.</p> <p>Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.</p> <p>Working Scientifically</p> <p>TAPS Floating and sinking</p> <p>Do: Perform simple tests to compare and group</p>			<p>These can be identified by looking at key characteristics of the plant.</p> <p>Plants have common parts but they vary between the different types of plants.</p> <p>Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.</p> <p>Working Scientifically</p> <p>TAPS - Plant Structure</p> <p>Do: Observe closely using simple equipment</p>	
<p>Seasonal changes</p> <p>How do I know what season it is?</p> <p>NC Objectives</p> <p>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p> <p>Key learning:</p>						

	<p>In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and drier in the summer. The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.</p> <p>Working Scientifically TAPS - Seasonal change Do: Observe over time and record data to help in answering questions</p>				
<p>Year 2</p>	<p>Living things and their habitats</p> <p>How do living things survive?</p> <p>NC Objectives</p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <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>Identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food</p> <p>Key learning</p> <p>All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.)</p> <p>An object made of wood is classed as dead. Objects made of rock, metal and plastic have</p>	<p>Animals including humans</p> <p>How can humans keep themselves healthy?</p> <p>Do all animals look like their parents?</p> <p>NC Objectives</p> <p>Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Key learning</p> <p>Animals, including humans, have offspring which grow into adults. In humans and some</p>	<p>Super scientist study</p> <p>Jane Goodall</p>		<p>Uses of everyday materials</p> <p>How do I know what the most suitable material for the job is?</p> <p>NC Objectives</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Key learning</p> <p>All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task.</p> <p>A material can be suitable for different purposes and an object can be made of different materials.</p> <p>Objects made of some</p>

<p>never been alive (again ignoring that plastics are made of fossil fuels).</p> <p>Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants –shelter, food and water.</p> <p>Within a habitat there are different micro-habitats e.g. in a woodland –in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.</p> <p>Working Scientifically</p> <p>TAPS – Sorting living and non living Review: Use of appropriate scientific language to communicate their ideas TAPS – Woodlice habitat Do: Gather and record data to help in answering questions</p>	<p>animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles.</p> <p>All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise.</p> <p>Good hygiene is also important in preventing infections and illnesses.</p>			<p>materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.</p> <p>Working scientifically</p> <p>TAPS – Waterproof materials</p> <p>Plan: Ask simple questions and recognise that they can be answered in different ways</p>
<p>Plants</p> <p>How important is the environment to plants?</p> <p>NC Objectives Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>Key Learning Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.</p> <p>Working Scientifically TAPS – Comparing plant growth in different conditions</p>				

Do: Observe closely, using simple equipment (over time)						
Year 3	<p>Animals inc humans</p> <p>Super scientist</p> <p>Mary Anning</p> <p>Why should I eat different foods? What helps me to move?</p> <p>NC Objectives Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Key learning Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Humans, and some other animals, have</p>	<p>Rocks</p> <p>Can I describe the properties of different rocks?</p> <p>NC Objectives Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter</p> <p>Key learning Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties.</p> <p>Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water.</p> <p>Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of</p>	<p>Forces and magnets</p> <p>What would our lives be like without magnets?</p> <p>NC Objectives Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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>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> <p>Key learning A force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect</p>	<p>Plants</p> <p>Why are flowers important?</p> <p>NC Objectives Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves; and flowers.</p> <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>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>Key learning: Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis,</p>	<p>Light</p> <p>What do our shadows tell us?</p> <p>NC Objectives Recognise that they need light in order to see things, and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way that the size of shadows change.</p> <p>Key learning We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective.</p> <p>The light from the sun can</p>	

	<p>skeletons and muscles which help them move and provide protection and support.</p> <p>Working scientifically</p> <p>TAPS – Investigating the human skeleton Plan: Ask relevant questions and use different types of scientific enquiries to answer them</p>		<p>ground down rock which may be mixed with plant and animal material (organic matter).</p> <p>The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil.</p> <p>Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.</p> <p>Working scientifically</p> <p>TAPS – Reporting on Rocks Review: Reporting on findings from enquiries</p>	<p>how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes.</p> <p>A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract.</p> <p>Working Scientifically TAPS – Magnet tests Plan: Set up simple practical enquiries, comparative and fair tests</p>	<p>pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Different plants require different conditions for germination and growth.</p> <p>Working scientifically</p> <p>TAPS - How much water do plants need? Do: Making systematic and careful observations and measurements using standard units</p> <p>TAPS - Function of a plant stem Review: Use straightforward scientific evidence to answer questions or to support their findings</p>	<p>damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light.</p> <p>Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface.</p> <p>Working scientifically</p> <p>TAPS – Can everything make a shadow? Do: Gather and record data to answer questions.</p>
<p>Year 4</p>	<p>Animals inc humans</p> <p>What happens to food when we eat?</p> <p>NC Objectives</p> <p>Describe the simple functions of the basic</p>	<p>States of matter</p> <p>What are the differences between solids, liquids and gases?</p> <p>NC objectives</p>	<p>Living things and their habitats</p> <p>How can we group living things?</p> <p>What can affect their environment?</p> <p>NC objectives</p>	<p>Electricity</p> <p>Could we live without electricity?</p> <p>NC objectives</p> <p>Identify common appliances that run on</p>	<p>Sound</p> <p>Why can I hear that sound?</p> <p>NC Objectives</p> <p>Identify how sounds are made, associating some</p>	<p>Super scientist</p> <p>David Attenborough</p>

<p>parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p>Key Learning Food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball.</p> <p>The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added. The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>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>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>Key learning A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid.</p>	<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>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Key Learning Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things.</p> <p>Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e.</p>	<p>electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.</p> <p>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>Recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>Key Learning Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off.</p>	<p>of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p> <p>Key Learning A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.</p> <p>The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in</p>	
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<p>rectum until it leaves the body through the anus when you go to the toilet.</p> <p>Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).</p> <p>Living things can be classified as producers, predators and prey according to their place in the food chain.</p> <p>Working scientifically</p> <p>TAPS – Teeth in liquid</p> <p>Plan: Ask relevant questions and use different types of scientific enquiries to answer them</p>	<p>Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0oC. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100oC. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling.</p> <p>Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known</p>	<p>negative human impact, such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year.</p> <p>Working scientifically</p> <p>TAPS – Local survey Do: Gather, record and classify data</p>	<p>Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity</p> <p>Working scientifically</p> <p>TAPS – Does it conduct electricity? Review: Report on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions.</p>	<p>volume as you move away from the source. A sound insulator is a material which blocks sound effectively.</p> <p>Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.</p> <p>Working scientifically</p> <p>TAPS – String telephones</p> <p>Review: Identify differences, similarities or changes related to simple scientific ideas and processes</p>		
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		<p>as precipitation. This is the water cycle.</p> <p>Working scientifically</p> <p>TAPS – Drying materials Plan: Set up a fair test</p>				
Year 5	<p>Living things and their habitats</p> <p>Plants, mammals, birds, insects – what is the same, what is different?</p> <p>NC Objectives:</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p> <p>Key Learning</p> <p>As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born</p>	<p>Forces</p> <p>How do different forces affect our everyday lives?</p> <p>NC Objectives:</p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>Key learning</p> <p>A force causes an object to start moving, stop moving, speed up, slow down or change direction. Gravity is a force that acts at a distance. Everything is pulled to the Earth by</p>	<p>Earth and space</p> <p>What if the Earth wasn't on an axis?</p> <p>NC Objectives:</p> <p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>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>Key learning</p> <p>The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed</p>	<p>Properties and changes of materials</p> <p>How useful is plastic compared to other materials?</p> <p>NC Objectives</p> <p>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.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Key learning</p> <p>Materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and</p>	<p>Properties and changes of materials</p> <p>If materials are mixed together, can they be separated again?</p> <p>NC Objectives</p> <p>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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>Key learning</p>	<p>Animals inc humans</p> <p>How do humans change during their life-cycle?</p> <p>NC Objectives</p> <p>Describe the changes as humans develop to old age.</p> <p>Key Learning</p> <p>When babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce.</p> <p>Working Scientifically</p> <p>TAPS – Growth Survey Do: Take measurements using a range of equipment</p>

	<p>live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis.</p> <p>Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent.</p> <p>Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects.</p> <p>Working scientifically</p> <p>TAPS - Life cycle research Review: Report and present findings from enquiries, in oral and written forms such as displays and other presentations, using</p>	<p>gravity. This causes unsupported objects to fall. Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object.</p> <p>A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.</p> <p>Working scientifically</p> <p>TAPS – paper planes</p> <p>Plan: enquiry, recognising and controlling variables</p>	<p>orbits.</p> <p>Earth takes 365¼ days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky. The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical.</p> <p>Super scientist</p> <p>Katherine Johnson</p>	<p>attraction to magnets.</p> <p>Working scientifically</p> <p>TAPS – Insulation layers</p> <p>Do: Use test results to make predictions to set up further comparative and fair tests</p>	<p>Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.</p> <p>Mixtures can be separated by filtering, sieving and evaporation. Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.</p> <p>Working scientifically</p> <p>Create water filter</p> <p>Setting up tests and choosing right equipment</p>	
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	appropriate scientific language.					
	<p>Living things and their habitats</p> <p>Plants, mammals, birds, insects – what is the same, what is different?</p> <p>Working scientifically Do: Observing over time</p>					
Year 6	<p>Living things and their habitats</p> <p>How do you explain which of these living things is the odd one out?</p> <p>NC Objectives</p> <p>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>Give reasons for classifying plants and animals based on specific characteristics.</p> <p>Key Learning</p> <p>Living things can be formally grouped according to characteristics. Plants</p>	<p>Animals including humans</p> <p>Why is having a healthy heart so important?</p> <p>NC Objectives</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Key Learning</p> <p>The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon</p>	<p>Evolution and inheritance</p> <p>Why do plants and animals have certain characteristics? What happens if their environments change?</p> <p>NC Objectives</p> <p>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>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>Key learning</p> <p>All living things have offspring of the same kind, as features in the offspring are inherited from the parents. Due to sexual reproduction, the offspring are not identical to their parents and vary from each other. Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in</p>	<p>Light</p> <p>How do I see?</p> <p>NC Objectives</p> <p>Recognise that light appears to travel in straight lines.</p> <p>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>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>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>Working scientifically</p> <p>TAPS – Raising and sorting light questions (near start of</p>	<p>Electricity</p> <p>What happens if components in a circuit are changed?</p> <p>NC Objectives</p> <p>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>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> <p>Key learning</p> <p>Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a</p>	

	<p>and animals are two main groups but there are other living things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot.</p> <p>Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms.</p> <p>Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.</p> <p>Working scientifically</p> <p>TAPS – Invertebrate research</p>	<p>dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system.</p> <p>Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well our heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins. This content is also included in PSHE.</p> <p>Working scientifically</p>	<p>greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution.</p> <p>Fossils give us evidence of what lived on the Earth millions of years ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.</p> <p>Super scientist</p> <p>Charles Darwin</p> <p>Working Scientifically</p> <p>TAPS – Fossil habitats</p> <p>Review: Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>topic)</p> <p>Plan: Identify different types of scientific enquiries to answer their own questions</p>	<p>higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.</p> <p>You can use recognised circuit symbols to draw simple circuit diagrams</p> <p>Super scientist</p> <p>Michael Faraday</p> <p>Working scientifically</p> <p>TAPS – Bulb brightness</p> <p>Plan: Plan a scientific enquiry to answer a question, recognising and controlling variables.</p>
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	Review: Report and present findings using appropriate scientific language	TAPS – Heart rate poses Do: Use test result to make predictions to set up further comparative and fair tests			
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