

Mount Primary School

Science

Curriculum Design

Long Term Plan & Progression



Science Intent

At Mount Primary School, we follow the National Curriculum for Science. We teach science through stories and projects, so that learning is given purpose and relevance to the real world. Science is a very practical subject and so it gives learners the opportunity to work in a variety of ways, from designing and completing experiments to recording and analysing results. Children get ample opportunity to work scientifically, and record data using a variety of equipment as well as presenting their findings in a way chosen by themselves.

Science Implementation

The Early Years Foundation Stage (EYFS) and Key Stage One (KS1) are taught in discrete year groups. However, Lower Key Stage Two (LKS2) and Upper Key Stage Two (UKS2) are taught in mixed Year groups. Therefore, a two-year rolling programme has been designed to ensure full coverage of the curriculum.

Science Impact

Unit plans begin with a short activity to ensure key prior knowledge is embedded before teaching new knowledge. Each lesson also begins with a short activity to recaps on prior learning and ensure that links are made explicit to children and encourage 'sticky learning.' Children have opportunities to work scientifically within each unit; this allows children to apply and develop their understanding of a unit in a practical way.

Science Long Term Plan									
Key	Working scientifically						Biology	Chemistry	Physics
Concepts	Making observations & taking measurements	Comparative & Fair Tests	Identifying and Classifying	Looking for naturally occurring patterns and relationships	Recording and reporting Findings	Answering questions, drawing conclusions and evaluating			
	F2	Y1	Y2	Y3/4 A	Y3/4 B	Y5/6 A	Y5/6 B		
Autumn 1	My body Difference between materials	Seasonal changes	Living things and their habitats	Animals including humans	Living things and their habitats.	Animals including humans	Forces		
Autumn 2	Light and dark	Animals including humans	Materials	Light	Animals and their habitats	Light	Properties and changes of materials		
Spring 1	Sorting materials Floating and sinking	Everyday materials	Materials	Rocks	States of matter	Evolution and inheritance	Living things and their habitats.		
Spring 2	Change in materials		Animals including humans	Forces and magnets	Sound	Earth and space			
Summer 1	Lifecycles Sorting minibeasts Planting	Plants	Plants	Plants	Electricity	Electricity	Living things and their habitats.		
Summer 2	Observations of the world around them								

Progression Map

Key Concept - Scientific Vocabulary

F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
<p>Head, neck, shoulders, arms. elbows, wrists, hands, fingers, torso, chest, hip, leg, knees, thigh, shin, calf, ankle, foot, toes, chin, cheek, eyes, ears, nose, eyebrows, forehead, throat, joints.</p> <p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through</p> <p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, oak, horse chestnut, cherry, hawthorn, ash, sycamore, hazel, holly, Identify different types of plants: rose, daffodil, daisy, tulip, buttercup, dandelion. Names of trees in the local area</p> <p>Names of garden and wild flowering plants in the local area</p>	<p>Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves.</p> <p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through</p> <p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, oak, horse chestnut, cherry, hawthorn, ash, sycamore, hazel, holly, Identify different types of plants: rose, daffodil, daisy, tulip, buttercup, dandelion. Names of trees in the local area</p> <p>Names of garden and wild flowering plants in the local area</p>	<p>Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc</p> <p>opaque, transparent and translucent, reflective, non-reflective, flexible,rigid</p> <p>Shape, push/pushing, pull/puling, twist/twisting, squash/squashing.</p> <p>Bend/bending, stretch/stretching</p> <p>Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc.</p> <p>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p>	<p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints</p> <p>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p> <p>Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p> <p>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</p> <p>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p>	<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p> <p>Digestive system, digestion, herbivore, carnivore, omnivore, producer, consumer, predator, prey, food chain, teeth, incisors, canines, molars, premolars, food chain, mouth, saliva, oesophagus, stomach, small intestines, nutrients, large intestines, water, rectum, anus</p> <p>Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p> <p>Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p>	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle</p> <p>straight lines, light ray</p> <p>Puberty, sexual reproduction, menstruation (period), sperm, egg, foetus, gestation, life expectancy</p> <p>offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p> <p>Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets</p> <p>circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p>	<p>force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears</p> <p>Properties and changes of materials</p> <p>Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material</p> <p>Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings</p>

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Key Concept - Making observations & taking measurements

F2	Y1/2	Y3/4	Y5/6
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<p>Make observations using their senses and simple equipment Use equipment to measure</p>	<p>Observing closely, using simple equipment Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units.</p>	<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers The children make systematic and careful observations. They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</p>	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).</p>
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Key Concept - Comparative & Fair Tests

F2	Y1	Y2	Y3/4	Y5/6
<p>Make direct comparisons</p>	<p>Performing simple tests The children use practical resources provided to gather evidence to answer questions generated by the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.</p>	<p>Performing simple tests The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.</p>	<p>Setting up simple practical enquiries, comparative and fair tests The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking. Children begin to understand that when planning a fair test, only one variable must change. Children should be able to start explaining why a test is not fair.</p>	<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample. Children understand that when planning a fair test, only one variable must change and all others must remain the same. Children should be able to explain why a test is not fair and how it could be improved.</p>

Key Concept - Identifying and Classifying

F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
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<p>Make direct comparisons Identify, sort and group.</p>	<p>Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.</p>	<p>Be able to group objects and living things in different ways Use observable features of objects to identify them Begin to classify by behavioural features, e.g. is magnetic Talk about criteria for grouping, sorting and classifying</p>	<p>Use simple keys Begin to classify and identify by linking observable features to already known objects or things Identifying differences, similarities or changes related to simple scientific ideas or processes Be able, independently, to use simple databases or keys to identify or classify living things, objects or events</p>	<p>Suggest reasons for similarities and differences Create and use a variety of sources to identify and classify living things, objects and phenomena Use and develop keys and other information records to identify, classify and describe living things and materials</p>	<p>Create more complex forms of classification tools, e.g. databases, branching keys Begin to understand that broad groupings, such as micro-organisms, plants and animals can be subdivided Be able to discuss reasons why living things are placed in one group and not another</p>
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Key Concept - Looking for Naturally Occurring Patterns and Relationships

F2	Y1	Y2	Y3	Y4	Y5	Y6
<p>Make direct comparisons Talk about what they are doing and have found out</p>	<p>Notice what has changed when observing things or events - Talk about what they have found out or what they think may happen - Using their observations and ideas to suggest answers to questions - Say whether what happened was what they expected</p>	<p>Begin to recognise links between observations and answers to questions - Begin to use simple scientific language to talk about what they have found out - Be able to communicate their ideas to a range of audiences in a variety of ways - Use evidence to suggest answers to questions and make predictions</p>	<p>Notice patterns and relationships - With help, look for changes, patterns, similarities and differences in their data - Use evidence to answer questions and make predictions - With support, identify new questions arising from the data - Find ways of improving what they have already done - Link results to their own experiences</p>	<p>Look for naturally occurring patterns and relationships and decide what data to collect to identify them - Be able to collect data from their own observations and measurements - Make predictions for new values within or beyond the data they have collected - Recognise when a result seems unusual when compared with other values</p>	<p>Identify patterns that might be found in the natural environment - Look for different causal relationships in their data and identify evidence that refutes or supports their ideas - Find out about how scientific ideas have changed and developed over time as new evidence is discovered, e.g. ideas about the solar system</p>	<p>Systematically investigate the relationship between phenomena, e.g. light and shadows - Be able to identify and offer explanations for anomalous results - Analyse functions, relationships and interactions more systematically</p>

Key Concept - Recording & Reporting Findings

F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
<p>Record their observations by drawing, taking photographs, using sorting rings or boxes and on simple tick sheets</p>	<p>Gathering and recording simple data to help in answering questions The children record their observations e.g. using photographs, videos, drawings They record their measurements with simple pictograms. They classify using sorting rings.</p>	<p>Gathering and recording data to help in answering questions</p> <ul style="list-style-type: none"> • The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. • They classify using simple prepared tables and sorting rings. 	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, prepared bar charts, and tables. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts using prepared templates. They record classifications using tables and Venn diagrams. All data in Y3 that requires graphing should be discrete data</p>	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. Children are supported to present the same data in different ways in order to help with answering the question. All data in Y4 that requires graphing should be discrete data</p>	<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs (with support) The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs (with templates) They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys Children present the same data in different ways in order to help with answering the question. In Y5 children should work with a range of data including discrete, continuous..</p>	<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. Children present the same data in different ways in order to help with answering the question. In Y6 children should work with a range of data including discrete, continuous and looking for correlation.</p>

Key Concept - Answering questions, drawing conclusions and evaluating

F2	Y1/2	Y3/4	Y5/6
<p>Show curiosity and ask questions Use their observations to help them to answer their questions Talk about what they are doing and have found out</p>	<p>Using their observations and ideas to suggest answers to questions Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.</p> <p>Using their observations and ideas to suggest answers to questions The children recognise 'biggest and smallest', 'best and worst' etc. from their data.</p>	<p>Using straightforward scientific evidence to answer questions or to support their findings Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions They draw conclusions based on their evidence and current subject knowledge. Children are supported to use comparative sentences e.g. The longer the wire, the dimmer the bulb.</p>	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. They talk about how their scientific ideas change due to new evidence that they have gathered. They talk about how new discoveries change scientific understanding.</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge Children use comparative sentences confidently e.g. The longer the wire, the dimmer the bulb and can explain the scientific reason why.</p>

Key Concept - Researching Using Secondary Sources

F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
<p>Show curiosity and ask questions Use a variety of books and pictures to develop questions.</p>	<p>Use information from secondary sources to help answer a question</p>	<p>Use simple secondary sources, e.g.books, film, internet, to find information</p>	<p>Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations</p>	<p>Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations</p>	<p>Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact</p>	<p>Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. animals from around the world.</p>

Key Concept - Biology

F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
<p>Talk about members of their immediate family and community. Name and describe people who are familiar to them. Recognise some environments that are different to the one in which they live.</p>	<p>Animals including Humans</p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). 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>Animals including Humans</p> <p>Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Animals including Humans</p> <p>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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Animals including Humans</p> <p>Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Animals including Humans</p> <p>Describe the changes as humans develop to old age. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.</p>	
<p>Draw information from a simple map. Explore the natural world around them. Describe what they see, hear and feel whilst outside.</p>		<p>Living Things and their Habitats.</p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living</p>		<p>Living Things and their Habitats</p> <p>Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to</p>		<p>Living Things and their Habitats</p> <p>Describe how living things are classified into broad groups according to common observable</p>

<p>Recognise some environments that are different to the one in which they live.</p>		<p>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 microhabitats.</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>Notice that animals, including humans, have offspring which grow into adults.</p>		<p>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>characteristics and based on similarities and differences, including microorganisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p>
<p>Draw information from a simple map. (Reception – Living things and their habitats)</p> <ul style="list-style-type: none"> • Explore the natural world around them. <p>(Reception – Living things and their habitats)</p> <p>Describe what they see, hear and feel whilst outside. (Reception – Living things and their habitats)</p>	<p>Plants</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>Plants</p> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Plants</p> <p>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>Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)</p> <p>Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)</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>Evolution & Inheritance</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. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	

Key Concept - Chemistry						
F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Everyday materials Name everyday materials Understand that materials have different uses Classify materials and explore the suitability	Uses of Everyday materials Name, describe and sort properties of common materials Understand that materials can change	Rocks Describe properties of rocks To know how fossils are formed Understand what soil is and how its properties vary Investigate properties of soils	States of Matter Understand states of matter Explore states of matter and their properties Understand and describe the water cycle		Properties & Changes in Materials 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. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials,

						<p>including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. 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>
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Key Concept - Physics						
F2	Y1	Y2	Y3/4A	Y3/4B	Y5/6A	Y5/6B
<p>Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them.</p>	<p>Seasonal Changes</p> <p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>		<p>Light</p> <p>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>Forces and Magnets</p> <p>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>Electricity</p> <p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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>Sound</p> <p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds</p>	<p>Light</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>Earth & Space</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</p>	<p>Forces</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>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>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>explain day and night and the apparent movement of the sun across the sky.</p> <p>Electricity</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>	
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