



Science scheme of work (from September 2020)

Christian values underpinning learning - Love, respect, determination, creation, creativity and peace

Intent

The National Curriculum (2014) forms the basis for all subject teaching ensuring continuity and progression in an age-related curriculum. In addition, teachers make sure the content is relevant and stimulating by delivering through themes and topics.

Our Science curriculum has been developed to recognise the importance of Science in every aspect of daily life, and to give the teaching and learning of Science the prominence it requires. Our intent is to enable children to become enquiry-based learners by developing:

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
- The confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
- High levels of originality, imagination or innovation in the application of skills.
- The ability to undertake practical work in a variety of contexts, including fieldwork.
- A passion for science and its application in past, present and future technologies.
- The natural curiosity of the child, encouraging respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence.

Implementation

We ensure that all teachers and have excellent subject knowledge and leadership supports the development of this for all members of staff. Subject matter is presented clearly, teachers carefully check learning and identify misconceptions, providing direct feedback and create a positive attitude to science learning within their classrooms.

- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching



- Involving problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers.
- Children should have access to key scientific language and meanings in order to understand and readily apply these to their written, mathematical and verbal communication of their skills.
- They will use a range of resources to develop their knowledge and understanding that is integral to their learning and develop their understanding of working scientifically.
- Teaching and learning should plan for practical investigative opportunities within Science lessons.
- Children will reflect on previous learning and cross curricular links will be made wherever possible
- Children will be able to build on prior knowledge and link ideas together, enabling them to question and support them in making sense of the world around them

Year A (2021 – 2022)

Class	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Oak	Materials – building homes Our bodies	Animals Habitats	Structures Melting	Changing state – eggs Mixing and separating	Minibeasts Magnifiers	Wheels Floating & sinking
Poplar	Everyday Materials Electrical Circuits	Light and seeing Sound and hearing Animals including humans	Seasonal Changes	Everyday Materials	Plants	Animals including humans Living things and their habitats
Willow	Living things and their habitats	Animals including humans	Forces and Movement	Forces and Movement	Electricity	Electricity
Maple	Evolution and Inheritance	Light Earth and Space	Forces Earth and Space	Animals including Humans	Animals including Humans	Electricity



Year B (2020 – 2021)

Class	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Oak	Materials – building homes Our bodies	Animals Habitats	Structures Melting	Changing state – eggs Mixing and separating	Minibeasts Magnifiers	Wheels Floating & sinking
Poplar	Everyday Materials Force and Movement	Everyday Materials	Animals including Humans	Animals including humans Living things and their habitat	Seasonal Changes (Across the year)	Plants Living things and their habitats
Willow	Rocks	Sound	Plants	Plants	Light	Electricity (catch up from last year).
Maple	Forces and Movement	Electricity and Water Cycle	Properties and changes of materials	Properties and changes of materials	Living things and their habitats	Living things and their habitats

Each Unit will be delivered using the Plan Assessment Unit Plans to support

Area	Oak – Reception	Poplar – Y1/2	Willow – Y3/4	Maple – Y5/6
Science opportunities		BIOLOGY Plants <ul style="list-style-type: none"> Identify, name and classify a variety of common plants and trees and describe their basic structure. Observe seeds and bulbs becoming mature plants and what conditions they need to stay healthy 	BIOLOGY Plants <ul style="list-style-type: none"> Observe and describe the function of parts of flowering plants, requirements of growth, transportation of water and the life cycle of plants. Describe water transportation in plants, life cycles and seed dispersal. 	BIOLOGY Animals and humans <ul style="list-style-type: none"> Describe how water and nutrients are transported within the human body. Investigate the human circulatory system. Recognise the effect of diet, exercise and drugs.



		<p>Animals and humans</p> <ul style="list-style-type: none"> • Identify, name, classify and describe a variety of animals. • Look at growth, basic needs, exercise, food and hygiene in humans. • Describe and compare structure of a variety of common animals • Draw and label parts of the human body. <p>Living things and Habitats</p> <ul style="list-style-type: none"> • Investigate differences between living, dead and things which have never been alive. • Investigate how living things have habitats and these provide their basic needs. • Use simple food chains. <p>CHEMISTRY</p> <p>Materials</p> <ul style="list-style-type: none"> • Identify a variety of everyday materials • Describe and group everyday materials. • Compare suitability of materials for use. • Investigate how the shape of some solid objects can be changed. <p>PHYSICS</p> <ul style="list-style-type: none"> • Observe seasonal changes • Describe the different weather in each season and the difference in day length. 	<p>Animals and humans</p> <ul style="list-style-type: none"> • Investigate the basic parts of the digestive system in humans. • Investigate different types of teeth. • Investigate growth, basic needs, exercise, food and hygiene. • Identify the roles of skeletons and muscles. • Construct and interpret food chains <p>Living things and Habitats</p> <ul style="list-style-type: none"> • Investigate different ways of grouping living things • Recognise that habitats and environments change and that this can pose a danger to a species • Use classification keys. <p>CHEMISTRY</p> <p>Material</p> <ul style="list-style-type: none"> • Compare and group materials by their properties solid, liquid and gas. • Investigate the changes in state of matter of a material when heated or cooled. • Investigate evaporation and condensation in the water cycle. • Compare and group rocks and soils 	<ul style="list-style-type: none"> • Describe and explain changes as humans develop to old age. <p>Living things and Habitats</p> <ul style="list-style-type: none"> • Look at the life cycle of mammals, amphibians, insects and birds. • Look at classification of plants, animals and micro-organisms. • Look at reproduction in plants and animals. <p>Evolution and inheritance</p> <ul style="list-style-type: none"> • Recognise that fossils provide information about living things that inhabited the Earth millions of years ago • Investigate how plants and animals, are adapted to suit their environment in different ways and that adaptation may lead to evolution. • Recognise that plants and animals resemble their parents in many features <p>CHEMISTRY</p> <p>Materials</p> <ul style="list-style-type: none"> • Compare and group everyday materials on the basis of their properties.
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			<ul style="list-style-type: none">• Describe how fossils are formed. <p>PHYSICS</p> <p>Light Investigate light sources and shadows</p> <p>Sound Investigate sounds including vibrations, pitch and volume.</p> <p>Electricity Construct series electrical circuits naming parts.</p> <p>Forces and Magnets</p> <ul style="list-style-type: none">• Compare movement on different surfaces.• Look at contact and distant forces, attraction and repulsion, comparing and grouping materials.• Investigate magnetism including poles, attraction and repulsion.	<ul style="list-style-type: none">• Look at solubility and recovering dissolved substances.• Separate mixtures.• Examine changes to materials from reversible and irreversible changes. <p>PHYSICS</p> <p>Light</p> <ul style="list-style-type: none">• Explain how light appears to travel in straight lines and how this affects seeing and shadows.• Explain that light travels from a source to the eyes. <p>Electricity</p> <ul style="list-style-type: none">• Investigate insulators and conductors.• Record symbols for circuit diagrams• Look at series and parallel circuits, the effect of the voltage in cells and the resistance and conductivity of materials. <p>Forces and magnets</p> <ul style="list-style-type: none">• Look at the effect of gravity and drag forces such as air
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				<p>and water resistance and friction.</p> <ul style="list-style-type: none"> • Look at transference of forces in gears, pulleys, levers and springs. <p>Earth and space</p> <ul style="list-style-type: none"> • Investigate how the solar system has developed. • Look at the movement of the Earth, Moon and other planets in relation to the sun. • Explain day and night
<p>Working scientifically</p>	<p>Know about similarities, differences, patterns and changes in relation to places, objects, materials and living things.</p> <p>Make observations of animals and plants and explain why some things occur.</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 observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and data loggers.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.</p>	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision taking repeat readings when appropriate.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of degree of trust results, in oral and</p>



Achieving together

	<p>Talk about features of their own environment and how environments may vary.</p> <p>Ask simple questions recording answers in different ways. Observe closely, using simple equipment.</p>					<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Use results to draw simple conclusions make predictions for new values, suggest improvements and raise further questions.</p> <p>Identify differences, similarities or changes related to simple, scientific ideas and processes.</p> <p>Use straightforward, scientific evidence to answer questions or to support their findings.</p>	<p>written forms such as displays and other presentations.</p> <p>Present findings in written form, displays and other styles of presentations.</p> <p>Use test results to make predictions to set up further comparative and fair tests.</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p>	
<p>Vocabulary</p> <p>Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.</p>		<p>Year 1</p> <p>Questions Answers Equipment Gather Measure Record Results Sort Group Test Explore</p>	<p>Year 2</p> <p>Pictogram Tally chart Block diagram Venn diagram Order Link Stop watch</p>	<p>Year 3</p> <p>Questions Types of scientific enquiry Changes Comparative tests Fair tests Careful Accurate Observations Present</p>	<p>Year 4</p> <p>Increase Decrease Appearance</p>	<p>Year 5</p> <p>Opinion Fact Variables Independent variable Dependent variable Controlled variable Accuracy Precision</p>	<p>Year 6</p> <p>Opinion Fact Support Refute Variables Independent variable Dependent variable Controlled variable Accuracy Precision Degree of trust Classification of keys</p>	



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		Compare Describe Similarities Differences Timers Rulers Tape measures Metre stick Beaker Pipette Syringe		Data Evidence Keys Bar chart Results Conclusion Thermometer Data logger Magnifying glass Microscope Prediction Supported Not supported		Degree of trust Scatter graph Line graph Causal relationship	
Plants	Investigate the different plants which grow in the local environment Investigate where and how our food grows Understand that some plants do not grow in our country	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees. Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants needs water, light and a suitable temperature to grow and stay healthy.		Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. 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. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			
Plants Vocabulary		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6



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<p>Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.</p>		<p>Names of locally found wild plants Names of garden plants Names of flowering plants Names of trees Leaf/leaves Petal Flower Fruit Blossom Berry Root Bulb Seed Trunk Branch Stem Bark Stalk Vegetable Names of flowers and vegetables grown.</p>	<p>Dry Crispy Soil Earth Shoot Seedling Wither Limp Die Fully grown Water Light Damp/wet/dry Dark/light Hot/warm Cold/cool Comparatives Grow/growth healthy</p>	<p>Part Role Air Nutrients Soil Fertiliser Transported Life cycle Pollination Seed formation Seed dispersal</p>			
<p>Animals, including humans</p>	<p>Name a variety of different animals both in our local environment and in different</p>	<p>Identify and name a variety of common animals including birds, fish, amphibians, reptiles and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p>	<p>Identify that humans and some animals have skeletons and muscles for support, protection and movement</p> <p>Identify that animals. Including humans need the right types and amount of nutrition and that they cannot make their</p>	<p>Describe the changes as humans develop to old age.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>			



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	<p>places in the world.</p> <p>Understand that different animals live in different countries and habitats.</p> <p>Know what our sense are and why they are important to us.</p> <p>Recognise the people in their family and the changes from babies to toddlers and starting school.</p>	<p>Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).</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>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, air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.</p>		<p>own food; they get nutrition from what they eat.</p> <p>Describe the simple functions of the basic 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>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 human bodies function.</p>	
<p>Animals including humans vocabulary</p>		<p>Year 1</p>	<p>Year 2</p>	<p>Year 3</p>	<p>Year 4</p>	<p>Year 5</p>	<p>Year 6</p>
<p>Each year group should know previous year groups as well as being introduced</p>		<p>names of common animals names of common animals (eat other animals)</p>	<p>offspring babies young grow change adults</p>	<p>nutrition nutrients food types fruit and vegetable</p>	<p>digestive system nutrition nutrients mouth teeth canines</p>		<p>circulatory system heart blood blood vessels pumps oxygen</p>



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<p>to the new vocabulary of their year.</p>		<p>names of common animals (eat plants) names of common animals (eat plants and animals) wild animals pets body head neck arms elbows legs knees face ears/eyes eyebrows eyelashes nose hair mouth teeth tongue feet toes fingers nails ankle calf thigh hips waist trunk</p>	<p>older/younger baby/toddler/child/teenager basic needs water food air breathing survival exercise food types fruit and vegetable bread, rice, potato, pasta milk and dairy foods foods high in fat or sugar meat, fish, egg, beans <i>Will be introduced to nutrition and nutrients in year 3 so avoid protein, carbohydrates etc</i> hygiene clean wash healthy medicine drugs</p>	<p>bread, rice, potato, pasta milk and dairy foods foods high in fat or sugar meat, fish, egg, beans carbohydrates protein vitamins and mineral fat dietary fibre water balanced diet skeleton muscles support protection movement skull ribs spine/vertebra joints sockets bones tendons</p>	<p>incisor molar pre-molar saliva tongue rip, tear, chew, grind, cut oesophagus (gullet) stomach small intestine large intestine rectum anus carnivore herbivore omnivore producer consumer predator prey food chain</p>		<p>carbon dioxide lungs nutrients water diet exercise drugs lifestyle</p>
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		chest shoulders back hands wrist tail wing claw fin scales feathers fur beak senses hear/hearing see/seeing touch/touching smell/smelling taste/tasting rough/smooth bright/dim loud/quiet high/low repeating/continuous				
Seasonal Changes	Observe changes across the four seasons.	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies				
Seasonal changes vocabulary		season spring summer autumn winter				



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		weather hot/warm cool/cold sun/sunny cloud/cloudy wind/windy rain/rainy snow/snowing hail/hailing sleet frost fog/mist ice/icy rainbow thunder lightning storm light/dark day/night			
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Achieving together

<p>Living things and their habitats.</p>	<p>Investigate things which live in the local environment and what they need to survive.</p>	<p>Explore and compare the difference 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>Recognise that living things can be grouped in a variety of ways.</p> <p>Recognise that environments are constantly changing and that this can sometimes pose dangers to specific habitats.</p> <p>Explore and use classification keys to help group, identify and name a variety of things in their local and wider environment.</p>		<p>Describe the difference in the life cycles of a mammal, amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals.</p>	
<p>Living things and their habitats vocabulary</p>		<p>Year 1</p>	<p>Year 2</p>	<p>Year 3</p>	<p>Year 4</p>	<p>Year 5</p>	<p>Year 6</p>
<p>Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.</p>			<p>living dead never been alive move grow feed have offspring/young/babies</p>		<p>classification keys environment fish amphibians reptiles birds mammals vertebrates invertebrates</p>	<p>life cycle reproduction sexual asexual germination pollination seed formation</p>	<p>organism micro-organisms fungus mushrooms classification keys environment fish amphibians reptiles</p>



			<p>name local habitats e.g. a pond e.g. a woodland e.g. a meadow</p> <p>name micro-habitats e.g. under log e.g. on stony path e.g. under bushes</p> <p>damp/wet/dry dark/light hot/warm/cool/cold use comparatives e.g. hotter suited/suitable basic needs depend food food chain shelter</p>		<p>name some invertebrates human impact name positive human impact name negative human impact</p>	<p>seed dispersal pollen stamen stigma plantlets e.g. spider plant runners e.g. strawberry plant mammal amphibian insect bird fish reptile eggs live young</p>	<p>birds mammals vertebrates invertebrates name some invertebrates arachnid mollusc insect crustacean</p>
Evolution and inheritance						<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>Identify how plants and animals, are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	



				Recognise that living things produce offspring of the same kind but normally offspring vary and are not identical to their parents.
Evolution and inheritance vocabulary				<ul style="list-style-type: none"> evolution suited/suitable environment suited adapted/adaptation offspring characteristics vary/variation inherit/inheritance fossils
Use of everyday materials	<p>Identify and name a variety of everyday materials</p> <p>Investigate why different materials are used for different objects.</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.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</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>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>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</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>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>Give reasons, based on evidence from comparative and fair tests, for</p>



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		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature		the particular uses of everyday materials, 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, oxidation and the action of acid on bicarbonate of soda.	
Use of everyday materials vocabulary		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.		object material wood plastic glass metal water rock brick paper fabrics elastic foil card/cardboard rubber	suitable/unsuitable use/useful object material property wood plastic glass metal water rock brick paper fabrics elastic	rock stone pebble boulder soil fossils grains crystals hard/soft texture absorb water let water through marble chalk	states of matter solid liquid gas air oxygen powder grain/granular crystals change state ice/water/steam water vapour heated/heating cooled/cooling temperature	hard soft stretchy rigid flexible waterproof absorbent strong/weak rough smooth reflective non reflective transparent opaque translucent	



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	wool clay hard soft stretchy stiff bendy/floppy waterproof absorbent breaks/tears rough smooth shiny dull see through not see through	foil card/cardboard rubber wool clay hard soft stretchy rigid flexible waterproof absorbent strong/weak rough smooth reflective non reflective transparent opaque translucent shape changed push/pushing pull/pulling twist/twisting squash/squashing bend/bending stretch/stretching pinch/pinching poke/poking roll/rolling squeeze/squeezing	granite sandstone slate sandy soil clay soil chalky soil peat	degrees celsius melt freeze solidify melting point molten boil boiling point evaporate/evaporation condense/condensation water cycle precipitation transpiration		
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<p>Forces and movement</p>	<p>Investigate pushes and pulls and how things move on different surfaces.</p>	<p>Investigate pushes and pulls and 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 how things move on different surfaces.</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>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 effect 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>Forces and movement vocabulary</p>		<p>Year 1</p>	<p>Year 2</p>	<p>Year 3</p>	<p>Year 4</p>	<p>Year 5</p>	<p>Year 6</p>
<p>Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.</p>				<p>force push/pushing pull/pulling contact force non contact force magnetic force magnet strength bar magnet</p>		<p>magnetic force magnet attract fall Earth gravity air resistance water resistance</p>	



Achieving together

				ring magnet button magnet horseshoe magnet attract repel magnetic material metal iron steel non-magnetic material poles north pole south pole		friction moving surfaces mechanisms levers pulleys gears force transfers	
Light and seeing	Investigate light and dark and recognise that dark is the absence of light Investigate different light sources. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.	Investigate different light sources. Investigate the effect that different materials have on a light source. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.		Recognise that we need light in order to see and that darkness is the absence of light. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a source is blocked by an opaque object. Find patterns in the way that the size of shadows change. Notice that light is reflected from surfaces.		Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 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.	



Achieving together

				Associate shadows with a light source being blocked by something; find patterns that determine the size of shadows.			
Light and seeing vocabulary		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.				light light source names of light sources e.g. torch dark/darkness reflect reflective mirror shadow block direct/ direction transparent opaque translucent			light light source names of light sources e.g. torch dark/darkness reflect reflective mirror shadow block absorb direct/ direction transparent opaque translucent
Sound and hearing	Investigate different sounds and how to change the volume, sound and pitch.	Investigate different sounds and how to change the volume, sound and pitch.		<p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that sounds get fainter as the distance from the sound's source increases</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p>			



Achieving together

						<p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that vibrations from sound travel through a medium to the ear.</p>	
Sound and hearing vocabulary		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.					sound sound source noise vibrate/vibration travel solid/liquid/gas pitch tune high/low volume loud/quiet fainter muffle strength of vibrations insulation instrument percussion strings brass woodwind tuned instrument		
Electricity	Identify and name common	Identify and name common appliances that run on electricity.		Construct a simple series electrical circuit, identifying and naming its basic parts,		Associate the brightness of a lamp or the volume of a buzzer with the	



Achieving together

	<p>appliances that run on electricity.</p>			<p>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>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>Electricity vocabulary</p>		<p>Year 1</p>	<p>Year 2</p>	<p>Year 3</p>	<p>Year 4</p>	<p>Year 5</p>	<p>Year 6</p>
<p>Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.</p>					<p>electricity appliances/device mains plug electrical circuit complete circuit circuit diagram circuit symbol components cell battery positive/negative connect/connection loose connection short circuit</p>		<p>electricity appliances/device electrical circuit complete circuit circuit diagram circuit symbol components cell battery positive/negative terminal connect/connection loose connection short circuit wire</p>



Achieving together

					wire crocodile clip bulb bright/dim switch buzzer motor fast(er)/slow(er) conductor insulator metal/non metal	crocodile clip bulb bright/dim switch buzzer volume motor fast(er)/slow(er) conductor insulator metal/non metal voltage current resistance	
Earth's movement in space						<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>	
Earth's movement in space vocabulary		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6



<p>Each year group should know previous year groups as well as being introduced to the new vocabulary of their year.</p>				<p>Earth planets Sun solar system Moon celestial body sphere/spherical rotate/rotation spin night and day Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto 'dwarf' planet orbit revolve geocentric model heliocentric model shadow clocks sundials astronomical clocks</p>	
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Impact

The impact and measure of this is to ensure children not only acquire the appropriate age-related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

Long term:

- Children will achieve age related expectations in Science at the end of their cohort year.
- Children will retain knowledge that is pertinent to Science with a real-life context.
- Children will be able to question ideas and reflect on knowledge.
- Children will work collaboratively and practically to investigate and experiment.
- Children will be able to explain the process they have taken and be able to reason scientifically.
- Children will gain a wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills.
- Children will achieve a richer vocabulary which will enable to articulate their understanding of taught concepts.
- Children and teachers will have high aspirations, which will see them through to further study, work and a successful adult life.

Assessment and Monitoring in Science:

The impact of our Science curriculum is measured through the monitoring cycle in school:

- Lesson observations, book monitoring and learning walks
- Pupil voice – to check understanding, understanding of key skills and knowledge, progression, confidence in discussing Science
- Children's work shows a range of topics and evidence of the curriculum coverage for all science topics.
- Children are becoming increasingly independent in science, selecting their own tools and materials, completing pupil lead investigations and choosing their own strategies for recording.
- All children are making progress, including EAL and SEND children.

Monitoring is also used to identify gaps in the curriculum that may need to be addressed across the school, or within individual year groups. Monitoring is an ongoing cycle, which is used productively to provide the best possible Science curriculum for our children.

Role of the co-ordinator:

- Highlight / Celebrate successes
- Collate appropriate evidence over time – this should show that pupils' skills and understanding develop over time
- Monitor the standards in the subject to ensure that outcomes are at expected levels
- Provide ongoing support to colleagues