

VALT SCIENCE Curriculum 2023

Early Learning Goals and National Curriculum Aims:

Early Years Foundation Stage:	Key Stage One:	Lower Key Stage Two:	Upper Key Stage Two:
<p>EYFS Linked Areas of Learning:</p> <p>The most relevant statements for science are taken from the following areas of learning:</p> <ul style="list-style-type: none"> • Understanding the World (The Natural World) • PSED (Managing Self) • Communication and Language 	<p>The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary</p>	<p>The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.</p>	<p>The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence</p>
<p>Early Learning Goal:</p> <p>Understanding the World (The Natural World)</p> <ul style="list-style-type: none"> - Explore the natural world around them, making observations and drawing pictures of animals and plants - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class - Understand some important processes and changes in the natural world around them, including the seasons <p>PSED (Managing Self)</p> <ul style="list-style-type: none"> -Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. 			

<p>'YI Ready' Goals:</p> <ul style="list-style-type: none"> -Observe and describe the natural environment around them. -Describe and discuss differences between their local environment and contrasting environments in the local area and around the world. -Describe and discuss changes e.g. seasonal changes, states of matter -Know different ways to keep healthy -Use specific vocabulary related to different scientific topics. 	<p>sources, such as books, photographs and videos.</p> <p>'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.</p> <p>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.</p>	<p>'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.</p> <p>Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.</p>	<p>to justify their ideas, and use their scientific knowledge and understanding to explain their findings.</p> <p>'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.</p> <p>Pupils should read, spell and pronounce scientific vocabulary correctly.</p>
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SCIENCE Year 1-6 Curriculum Overview: Long Term Plan:

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Working Scientifically	1. Everyday Materials Seasonal Changes		2. Plants Seasonal Changes		3. Animals including humans Seasonal Changes	
		<i>Chemistry</i> <i>Physics</i>		<i>Biology</i> <i>Physics</i>		<i>Biology</i> <i>Physics</i>	
Year 2	Working Scientifically	1. Uses of Everyday Materials		2. Animals Including Humans	3. Plants	4. Living things and Habitats	
		<i>Chemistry</i>		<i>Biology</i>	<i>Biology</i>	<i>Biology</i>	
Year 3	Working Scientifically	1. Animals, including humans	2. Forces & Magnets	3. Plants		4. Rocks	5. Light
		<i>Biology</i>	<i>Physics</i>	<i>Biology</i>		<i>Chemistry</i>	<i>Physics</i>
Year 4	Working Scientifically	1. Electricity	2. Sounds	3. Animals including humans	4. States of Matter	5. Living things and their habitats	Recap of all topics
		<i>Physics</i>	<i>Physics</i>	<i>Biology</i>	<i>Chemistry</i>	<i>Biology</i>	
Year 5	Working Scientifically	1. Earth and Space	2. Forces	3. Properties and changes in materials	4. Animals, including humans	5. Living things and their habitats	Recap of all topics
		<i>Physics</i>	<i>Physics</i>	<i>Chemistry</i>	<i>Biology</i>	<i>Biology</i>	
Year 6	Working Scientifically	1. Evolution & Inheritance	2. Living things and Habitats	3. Animals including humans	4. Light	5. Electricity	Recap of all topics
		<i>Biology</i>	<i>Biology</i>	<i>Biology</i>	<i>Physics</i>	<i>Physics</i>	

Biology	The study of life and living organisms. This includes subjects such as the cell, genes, inheritance, microorganisms, plants, animals, and the human body.
Chemistry	The study of properties of matter/materials and how these interact with energy.
Physics	The study of matter and its motion as well as how it interacts with energy and forces. There are many branches of physics including electricity, astronomy, motion, waves, sound, and light.

SCIENCE – WORKING SCIENTIFICALLY PROGRESSION (Bold – NC statements)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Questioning NC statement		Ask simple questions and recognise they can be answered in different ways		Ask relevant questions and use different types of scientific enquiries to answer them		Plan different types of scientific enquiries to answer questions, including recognising and controlling variables, where necessary	
Questioning	Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world.	Ask simple questions stimulated by their exploration of their world	Ask simple questions about their experiences and observations of objects, living things or events and with help use these observations to suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways	Within a group suggest relevant questions that can be explored/investigated further using different types of science enquiry	Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment/test	Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment/test	Recognise scientific questions to which they do not yet have definitive answers using a range of scientific enquiries to explore possible answers
Observe and Measure NC statement		Observe closely using simple equipment		Make systematic and careful observations and where appropriate take accurate measurements using standard units, using a		Take measurements using a range of scientific equipment, with increasing	

				range of equipment including thermometers and data loggers.		accuracy and precision, taking repeat readings when appropriate	
Observe and Measure	<p>Respond to prompts by making some suggestions about how to make an observation.</p> <p>Use senses and simple equipment to make observations.</p> <p>Talk about what happens and record using words and pictures.</p>	<p>Make measurements using non-standard units of measure</p> <p>Observe objects, living things, events and the world around them closely, using their senses and simple equipment</p>	<p>Make measurements using non-standard and standard units of measure</p> <p>Use equipment, provided for observation and measuring, correctly</p> <p>Observe closely</p>	<p>Take simple accurate measurements and/or careful observations using whole number standard units relevant to questions or ideas under investigation</p> <p>Use a range of equipment for measuring and observing, including thermometers and data loggers</p>	<p>Take accurate measurements using more complex standard units and parts of units</p> <p>Choose from a range provided, appropriate equipment for measuring and observing including thermometers and data loggers</p> <p>Make systematic and careful observations of objects, living things and events</p>	<p>Take measurements using a range of scientific equipment with increasing accuracy and precision identifying the ranges and intervals used</p> <p>With help recognise that some measurements and observations may need to be repeated</p>	<p>Decide whether it is appropriate to repeat observations or measurements and explain how this impacts on data collection</p> <p>Choose and use correctly appropriate equipment to support observation and data collection with increasing accuracy</p>
Planning and Performing Tests NC statement		Perform simple tests		Set up simple practical enquiries, comparative and fair tests		Plan different types of scientific enquiries to answer questions, including recognising and controlling variables, where necessary	
Planning and Performing Tests	Ask questions based on exploration of the world around them. Respond to prompts by making some suggestions about how to find an answer	Perform simple tests to explore a question or idea suggested to them, with support	Identify things to measure or observe that are relevant to the questions or ideas they are investigating using a simple test	Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating, with support	Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating	Plan enquiries deciding when it is appropriate to carry out a fair test or another type of practical enquiry from a range suggested	Recognise significant variables in investigations selecting the most suitable to investigate controlling variables where appropriate

			Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating		Identify one or more control variables from those provided when conducting a fair test	Identify one or more control variables in investigations when conducting a fair test	Recognise which type of practical enquiry is most appropriate to the question or idea being investigated, before planning and carrying out the enquiry
Identifying and Classifying NC statement		Identify and classify		Identify differences, similarities or changes related to simple scientific ideas and processes		Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
Identifying and Classifying	Children know about similarities and differences in relation to places, objects, materials and living things.	Recognise basic features, similarities and differences of objects or living things Sort and group objects or living things in different ways	Make comparison between basic features or components of objects, living things or events to support identification and/or classification Sort and group objects, living things or events on the basis of their observations and explain why	Identify and group objects, living things, processes or events by linking them to the characteristics of known objects, living things, processes or events	Identify differences, similarities or changes related to simple scientific ideas or processes and more complex groups of objects, living things and events	Classify objects, living things and events creating and using simple tables, keys or data bases with support	Use tables, keys and data bases to classify or identify specific objects, living things or events by their characteristics Begin to identify some positives and some limitations of specific forms of classification
Gathering and Recording Data NC statement		Gather and record data to help in answering questions		Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables		Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	

Gathering and Recording Data	Begin to record data in simple templates	Present evidence they have collected in simple templates provided for them to help in answering questions Draw or photograph evidence and label with support	Gather and record data in appropriate ways with increasing independence to help in answering questions	Gather and present evidence and data using simple scientific language and vocabulary as writing, drawing, labelled diagrams , display, through ICT, keys, bar charts or tables (using ranges and intervals chosen for them) to help in answering questions	Gather and present simple scientific data in a variety of ways as Year 3 including tables and bar charts where intervals and ranges agreed through discussion, to help in answering questions	Select appropriate ways of gathering and presenting scientific data from models, writing, drawing, display, through ICT, tables or graphs (choosing appropriate ranges and intervals) Use correct scientific symbols where appropriate in recording	Decide on the most appropriate formats to present sets of scientific data such as using line graphs for continuous variables Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
Drawing Conclusions and Reporting NC statement		Use observations and ideas to suggest answers to questions		Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Use straightforward scientific evidence to answer questions or to support their findings		Use test results to make predictions to set up further comparative and fair tests Report and present 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 Identify scientific evidence that has been used to support or refute ideas or arguments	
Drawing Conclusions and Reporting	Begin to use simple features to compare objects, materials and living things.	Use their ideas to suggest answers to questions Say what has changed when	Use their observations and ideas to suggest answers to questions and to make predictions	Use straightforward scientific evidence to answer questions and make predictions	Use straightforward scientific evidence to support their findings , make further predictions	Recognise when scientific evidence is for or against an argument	Identify scientific evidence that has been used to support or refute ideas or arguments

	<p>Identify what has changed when observing objects, living things or events.</p> <p>Talk in simple terms about what might happen based on own experiences.</p> <p>Noticing 'which worked best' – simple comparative statements.</p>	<p>observing objects, living things or events</p> <p>Respond to suggestions to connect what has been observed with possible further actions or observations</p> <p>Present findings in simple templates provided for them or orally</p> <p>Draw or photograph evidence and label with support</p>	<p>Respond to suggestions to identify some evidence needed to answer a question</p> <p>Use understanding of what has been observed or own experience to predict outcomes of further actions or observations</p> <p>Report on and record findings as drawings, photographs, labelled diagrams, orally, as displays, or in simple prepared tables or charts</p>	<p>Say whether what happened was what they expected, acknowledging any unexpected outcomes</p> <p>Use results of enquiries to consider whether they meet predictions and explain why</p> <p>With help use results, observations or own experience to prompt new questions and predictions for a further test</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions with support/as a group</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables with support/as a group</p>	<p>and explain their findings</p> <p>Identify scientific evidence they have used in drawing conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables</p>	<p>Recognise when scientific evidence supports an idea or not and use this to support predictions</p> <p>Use test results to draw conclusions, recognising that the test may need improvements to improve reliability</p> <p>Use test results to prompt new questions and make predictions for setting up further tests</p> <p>Present findings in written form, displays and other presentations including orally, explaining results and conclusions drawn from results</p> <p>Identify causal relationships in reporting outcomes where appropriate</p>	<p>Recognise scientific questions that do not yet have definitive answers</p> <p>Provide straightforward explanations for differences in repeated measurements or observations</p> <p>Use test results to make predictions for setting up further comparative and fair tests</p> <p>Compare their results with others and give reasons why they may be different</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of results in oral and written form such as displays and other presentations</p>
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SCIENCE – SCIENTIFIC KNOWLEDGE AND UNDERSTANDING PROGRESSION

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Plants</p> <ul style="list-style-type: none"> • Know that most plants start growing from a seed or bulb • All plants need water & light to grow & survive • Observe plants closely through a variety of means e.g. magnifiers & photographs • Use all the senses in hands-on exploration of plants • Plant seeds and care for growing plants • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things 	<p>Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.</p> <p>EXS+/GTMA Can they name the main parts of a flowering plant?</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>EXS+/GTMA Can they describe the function of the different parts of a flowering plant / tree? Can they describe what plants need to survive and link it to where they are found? Can they explain that plants grow and reproduce in different ways?</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem, 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>			

			EXS+/GTMA Can they classify a range of common plants according to many criteria (environment found, size, climate required, etc.)?			
Animals including Humans <ul style="list-style-type: none"> Identify different parts of their body & animals Be able to show care and concern for living things Have some understanding of growth and change Talk about things they have observed including animals Observational drawings of animals Understand the key features of the life cycle of an animal Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible 	<p>Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, and including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the</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>EXS+/GTMA Can they explain that animals reproduce in different ways?</p> <p>Can they explain the importance of the</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</p> <p>Identify that humans and some animals have skeletons and muscles for support, protection and movement.</p> <p>EXS+/GTMA Can they explain how the muscular and skeletal systems work together to create movement?</p> <p>Can they classify living things and non-living things by a number of</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>EXS+/GTMA Can they classify living things and non-living things by a number of characteristics that they have thought of?</p> <p>Can they explain how people, weather and</p>	<p>Describe the changes as humans develop from birth to old age.</p> <p>EXS+/GTMA Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies?</p> <p>Can they describe the changes experienced in puberty?</p> <p>Can they draw a timeline to indicate stages in the growth and development of humans?</p>	<p>Identify and name the main parts of the human circulatory system, and explain 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>amounts of 'screen time' - having a good sleep routine - being a safe pedestrian</p>	<p>body is associated with each sense.</p> <p>EXS+/GTMA Can they begin to classify animals according to a number of given criteria?</p> <p>Can they point out differences between living things and non-living things?</p> <p>Can they name some parts of the human body that cannot be seen?</p>	<p>rights types and amounts of nutrition on the body?</p> <p>Can they explain the importance of a balanced diet and the importance of the main food groups?</p>	<p>characteristics that they have thought of?</p> <p>Can they explain how people, weather and the environment can affect living things?</p> <p>Can they explain how certain living things depend on one another to survive?</p>	<p>the environment can affect living things?</p> <p>Can they explain how certain living things depend on one another to survive?</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</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>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>Explain 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>EXS+/GTMA Can they observe their local environment and draw conclusions about life-cycles, e.g.</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>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>EXS+/GTMA Can they name some characteristics of an animal that help it to live in a particular habitat?</p> <p>Can they describe what animals need to survive and link this to their habitats?</p>		<p>EXS+/GTMA Can they give reasons for how they have classified animals and plants, using their characteristics and how they are suited to their environment?</p> <p>Can they explore the work of pioneers in classification? (e.g. Carl Linnaeus)</p> <p>Can they name and group a variety of living things based on feeding patterns? (producer, consumer, predator, prey, herbivore, carnivore, omnivore)</p>	<p>plants in the vegetable garden or flower border?</p> <p>Can they compare the life cycles of plants and animals in their local environment with the life cycles of those around the world, e.g. rainforests?</p>	
Evolution and Genetics						Recognise that living things have changed over time and that fossils provide information about living things that inhabited

						<p>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>Materials</p> <p>· Observe & interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object & a boat floating on water · Use vocabulary to name specific features of the natural world, both natural & man-made · Notice & discuss</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</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>EXS+/GTMA</p>		<p>(States of 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 measure or research the temperature at which this happens in degrees Celsius (°C)</p>	<p>Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <p>Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a</p>	

<p>patterns around them e.g. the effect of seasons on flora & fauna</p>	<p>everyday materials on the basis of their simple physical properties</p> <p>EXS+/GTMA Can they describe things that are similar and different between materials?</p> <p>Can they explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate?</p> <p>Can they explain what happens to certain materials when they are cooled, e.g. jelly, heated chocolate?</p>	<p>Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.?</p> <p>Can they sort materials into groups and say why they have sorted them in that way?</p> <p>Can they say which materials are natural and which are man made?</p> <p>Can they explain how materials are changed by heating and cooling?</p> <p>Can they explain how materials are changed by bending, twisting and stretching?</p> <p>Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted?</p>		<p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>EXS+/GTMA Can they group and classify a variety of materials according to the impact of temperature on them?</p> <p>Can they explain what happens over time to materials such as puddles on the playground or washing hanging on a line?</p> <p>Can they relate temperature to change of state of materials?</p>	<p>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 the particular uses of everyday materials, including metals, wood and plastic</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>	
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Rocks & Fossils			<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>EXS+/GTMA Can they classify igneous and sedimentary rocks?</p> <p>Can they begin to relate the properties of rocks with their uses?</p>			
<p>Motion and Forces</p>			<p>(Magnetism) 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</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>Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.</p>	

			<p>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>EXS+/GTMA Can they investigate the strengths of different magnets and find fair ways to compare them?</p>		<p>EXS+/GTMA Can they describe and explain how motion is affected by forces?</p> <p>Can they design very effective parachutes?</p> <p>Can they work out how water can cause resistance to floating objects?</p> <p>Can they explore how scientists, such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation?</p>	
Light			<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</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>there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Find patterns in the way that the size of shadows change.</p> <p>EXS+/GTMA Can they explain why lights need to be bright or dimmer according to need?</p> <p>Can they explain the difference between transparent, translucent and opaque?</p> <p>Can they explain why their shadow changes when the light source is moved closer or further from the object?</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>
Sound				Identify how sounds are made, associating some		

				<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>EXS+/GTMA Can they explain why sound gets fainter/ louder according to the distance?</p> <p>Can they explain how pitch and volume can be changed ?</p>		
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				Can they work out which materials give the best insulation for sound?		
Electricity				<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</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>associate metals with being good conductors.</p> <p>EXS+/GTMA Can they explain how a bulb might get brighter?</p> <p>Can they recognise if all metals are conductors of electricity?</p> <p>Can they explain why cautions are necessary for working safely with electricity?</p>		
<p>Earth and Space</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>EXS+/GTMA Can they observe features in the environment and explain that these are related to a specific season?</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>Can they observe and talk about changes in the weather?</p> <p>Can they talk about weather variation in different parts of the world?</p>				<p>Use the idea of the Earth's rotation to explain day and night.</p> <p>EXS+/GTMA</p> <p>Can they compare the time of day at different places on the earth?</p> <p>Can they begin to understand how older civilizations used the sun to create astronomical clocks, e.g. Stonehenge?</p> <p>Can they explore the work of some scientists? (Ptolemy, Copernicus)</p>	
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SCIENCE – Key Vocabulary: TBC

	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2	
Y1	Everyday Materials		Everyday Materials		Plants		Plants		Animals including humans		Animals including humans	
			Seasonal Changes				Seasonal Changes				Seasonal Changes	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
	Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth		Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark		Trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem	Deciduous, Evergreen	Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark		Fish, Reptiles, Mammals, Birds, Amphibians, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak	Herbivore, Omnivore, Carnivore,	Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark	
Y2	Everyday Materials		We are scientists		Animals including humans		Plants		Living things and their habitat		Living things and their habitat	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
	Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Brick, Paper, Fabrics, Squashing, Bending, Twisting,	Waterproof, Absorbent, Opaque, Transparent	observe change slowly quickly describe name identify label record measure bigger smaller pattern notice cycle		Water, Air, Food, Adult, Baby, Kitten, Calf, Puppy, Exercise,	Survival, Offspring, Hygiene	Seeds, Bulbs, Water, Light, Temperature, Growth		Living, Dead, Energy, Woodland, Pond, Desert	Habitat, Food chain, Predator, Prey,	Living, Dead, Energy, Woodland, Pond, Desert	Habitat, Food chain, Predator, Prey,

	Stretching Elastic, Foil		predict									
Y3	Light		Forces and Magnets		Rocks		Plants		Animals including humans		We are scientists	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
	Light, Shadows, Mirror, Dark,	Reflective, Reflection	Contact, Poles, Push, Pull	Magnetic, Force, Attract, Repel, Friction,	Fossils, Soils,	Sandstone, Granite, Marble, Pumice, Crystals, Absorbent	Air, Light, Water, Soil, Flower	Nutrients, Dispersal, Pollination, Reproduction, Transportation,	Movement, Muscles, Bones, Skull, Nutrition, Skeletons,			gradually identify observe recognise investigate record units table fair evidence research length observations prediction
Y4	Electricity		States of matter		Sound		Animals including humans		Living things & habitats		We are scientists	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit,	Series, Conductors, Insulators	Solid, Liquid, Gas, Temperature, Freezing, Heating	Evaporation, Condensation, Particles,	Volume, Vibration, Speaker Wave,	Pitch, Tone,	Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar		Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats			similarities differences research source scientists discovery process cycle measurements conclude evaluate rank plan vary constant

											bar graph table tally	
Y5	Earth & Space		Properties and changes		Forces		All living things		Animals including humans		We are scientists	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
	Earth, Sun, Moon, Day, Night, star,	Axis, Rotation, Phases of the Moon, constellation, geocentric, heliocentric	Hardness, Magnetic, Filter, Mixing, mixture, reversible, irreversible	Solubility, Transparency, Conductivity, Evaporation, Dissolving, solute, solution,	Air resistance, Water resistance, Friction, Gravity, Gears, Pulleys	Newton,	Mammal, Reproduction, Insect, Amphibian, Bird,	Offspring	Baby, Toddler, Teenager, Elderly, Growth, Development,	Foetus, Embryo, Womb, Gestation, Puberty	classify interpret pattern relationship prediction analyse interpret conclude evaluate rank variable constants control repeat key relationship line graph	
Y6	Light		Electricity		Living things		We are scientists		Evolution		Animals including humans	
	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3	Tier 2	Tier 3
	Light, Spectrum, Rainbow, Colour,	Refraction, Reflection,	Wires, Bulbs, Switches, Buzzers, Battery,	Cells, Circuit, Series, Conductors, Insulators, Amps, Volts,	Classification, Amphibians, Reptiles, Mammals, Insects	Vertebrates, Invertebrates, Micro- organisms,	hypothesis variable constants evaluate plan conclude interpret classify categorise database enquiry control		Fossils, Characteristics, Reproduction,	Adaptation, Evolution, Genetics	Heart, Blood Vessels, Veins, Arteries, Valve, Exercise, Respiration	Circulatory, Oxygenated, Deoxygenated,

							repeat support refute degree of trust scatter graph				
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Tier 2: words that are useful across multiple subject areas (e.g. analysis, argument)

Tier 3: subject-specific words or technical terminology (e.g. electromagnetism, photovoltaic).



SCIENCE CURRICULUM - KEY VOCABULARY



YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
3. Animals including humans Fish, Reptiles, Mammals, Birds, Amphibians, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak, Senses, vision, smell, taste, touch, hearing, Herbivore, Carnivore.	2. Animals including humans Survival, Water, Air, Food, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene, Nutrition, Reproduction, Lifecycle, Baby, Toddler, Child, Teenager, Adult, Elderly	1. Animals including humans Movement, Muscles, Bones, Skull, Joint, Skeletons, Vertebrate, Invertebrate, Nutrients, Nutrition, Fats, Protein, Carbohydrate, Energy	3. Animals including humans Mouth, Tongue, Saliva, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Omnivore, Canine, Incisor, Premolar, Molar, Function	4. Animals including humans Fertilisation, Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Adolescent, Elderly, Growth, Development, Puberty	3. Animals including humans Internal Organs, Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration, Diet, Exercise, Drugs, Alcohol, Substances, Lifestyle, Nutrients.
2. Plants Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Roots, Trunk, Branches, Stem, Plant, Tree.	3. Plants Seeds, Bulbs, Water, Light, Temperature, Growth, Fruit, Vegetables, Germination, Reproduction, Lifecycle, Root, Stem, Leaf, Bud, Flower.	3. Plants Air, Light, Water, Nutrients, Soil, Function, Reproduction, Transportation, , Pollination, Flower, Seed, Dispersal.	5. Living things and their habitats Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats, Classification.	5. Living things and their habitats Mammal, Reproduction, Sexual, Asexual, Insect, Amphibian, Bird, Offspring, Lifecycle, Life Process.	2. Living things and their habitats Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects, Species.

1. Everyday Materials Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth, Waterproof	4. Living things and their habitats Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert, Ocean	4. Rocks Appearance, Properties, Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Grains, Absorbent, Sedimentary, Igneous, Metamorphic.	4. States of Matter Solid, Liquid, Gas, Evaporation, Celsius, Condensation, Particles, Temperature, Freezing, Heating, States of matter, Water vapour,	3. Properties and changes of materials Hardness, Solubility, Separate, Transparency, Conductivity, Magnetic, Filter, Sieve, Evaporate, Mix Dissolve, Reversible / Irreversible Change.	1. Evolution and Inheritance Fossils, Adaptation, DNA, Genes, Evolution, Genetics, Characteristics, Inherit, Reproduction, Natural Selection, Adaptation.
1, 2, 3. Seasonal Changes Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark, Weather, Rain, Wind, Fog, Mist, Temperature.	1. Everyday materials and their uses Material, Fabric, Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, , Brick, Paper, Squashing, Bending, Twisting, Stretching, Elastic, Foil	5. Light Light, Shadows, Mirror, Reflective, Dark, Reflection, Opaque, Transparent, Surface, Natural, Artificial, Source.	2. Sound Volume, Vibration, Wave, Pitch, Tone, Speaker, Medium, Insulate, Ear, Hear, Auditory canal, Ear drum, Cochlea.	1. Earth and Space Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation, Solar system, Heliocentric, Orbit, Hemisphere, Tilt.	4. Light Refraction, Reflection, Light, Spectrum, Rainbow, Colour, Source, Filter
		2. Forces and magnets Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull,	1. Electricity Cell, Battery, Wires, Bulb/Lamp, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators	2. Forces Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulley, Lever, Accelerate, Decelerate, Surface Area, Mechanisms	5. Electricity Cell, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Motor, Series, Conductors, Insulators, Amps, Volts.
BIOLOGY CHEMISTRY PHYSICS Numbers 1 - 5 = Teaching Order					

History – Key Vocabulary:

	Autumn	Spring	Summer
EYFS			
Y1			

Y2			
Y3			
Y4			
Y5			
Y6			

SCIENCE – Links to other Curriculum Subjects and Enrichment

	Autumn	Spring	Summer
EYFS			
Y1			
Y2			
Y3			
Y4			
Y5			
Y6			