



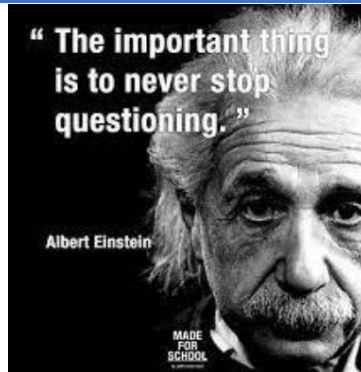
Belton Church of England Primary School

SCIENCE CURRICULUM STATEMENT

Achieving the Best Together

I have come that they may have life in all its fullness - John 10:10

Curriculum Vision



A Belton scientist can investigate and question the world around them; conducting experiments and recording their findings using appropriate scientific vocabulary. They will develop an awe and wonder about the world they live in which encourages them to question and explore.

Intent

At Belton Primary School we aim to develop our pupils as scientists, we want them to enjoy the subject and remember the exciting science in school. We aim to ensure that our pupils recognise the importance of Science in every aspect of their daily lives and understand the range of different career opportunities that use science skills. In an area rich in engineering and scientific industries, we want to make sure our learners are enthused about science and see this as a valuable and exciting career pathway for all. It is crucially important to us that diversity is reflected in our curriculum and that science is seen as a subject open to all and a possible future career that is blind to race, gender and lifestyle. Our Science curriculum will enable our children to increase their knowledge and understanding of our world, developing the skills associated with Science as a process of enquiry and endeavour to provide them with the confidence and motivation to continue to further develop their skills. By developing their natural curiosity, we encourage respect for living organisms and the physical environment and provide opportunities to be reflective and critical of evidence.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. As a school we have decided to adopt Developing Experts, which ensures coverage of the National Curriculum. Our choice of Developing Experts encourages children

to be inquisitive throughout their time at school and beyond. It ensures all children learn and retain knowledge throughout the programme of study and this is revisited at the start of the lesson. In each lesson, pupils are given key facts and knowledge through a storytelling approach to learning. Further to this, each lesson offers Rocket Words, these are key words and meanings to learn; vocabulary which is then repeated throughout the lesson, quizzed on at the end and repeated at the beginning of the following lesson.

All our lessons contain a balance of the different 'Working Scientifically Skills' and 'Scientific Enquiry' types, so that children practise a broad range of skills throughout the curriculum. We promote the importance of an investigative approach through regular 'hands on' experiences. Children work scientifically during lessons and work collaboratively developing skills and investigating different concepts and ideas. This encourages resilience, determination, perseverance, communication, collaboration and questioning. We mix the content knowledge and investigation skills needed to solve Science problems and make decisions and predictions based on what they have learned. Our lessons also allow our pupils to practise their Mathematics and English whilst developing their reasoning and problem-solving skills. By linking Science concepts to everyday life, our pupils can understand the world around them in a scientific way. This will enable pupils to have transferable skills across other subject disciplines, without impacting on the collection of specific scientific knowledge and skills, ensuring that pupils retain knowledge that will readily prepare them for secondary school.

We have developed a two-year rolling programme which covers our mixed - age classes.

Early Years

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them - from visiting parks, libraries and local areas to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. To further support their understanding of the natural world, children follow Developing Experts and use scientific enquiry skills from an early age as a basis for future learning; skills which are further embedded through play with links to all areas of the curriculum. As well as building important knowledge, playing and talking about the world around them extends familiarity with words and enriches and widens children's vocabulary.

Impact

Children's engagement is seen in their enthusiasm for learning. Children enjoy their learning and this is reflected through pupil interviews. If children are keeping up with their learning then they are deemed at making good or better progress. They take pride in their work and demonstrate good learning behaviours in school. Children understand where their knowledge fits into the outside world and why it is important to learn about all the different areas of the curriculum. They are able to demonstrate knowledge through pupil voice and also across wider subjects. Children are able to articulate themselves using acquired vocabulary from across the curriculum which in turn deepens knowledge and helps spark connections. Children are able to apply their Scientific enquiry skills to solve new problems and explain how and why they solved them through answering questions and fair testing. Children are confident to use a range of methods and equipment to experiment and then communicate results.

Our teaching of Science results in a fun, engaging, high-quality Science education, that provides children with the foundations for understanding the world outside of our village. Through regular assessment at the end of each topic, quizzes and questioning we measure progress. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. So much of science lends itself to outdoor learning and so we provide children with many opportunities to experience this.

SEN Statement

What are we aiming for children with SEND to achieve in science?

- Children should have the confidence to develop their own curiosity and ask questions in science. Questions asked are written down and referred back to at the end of topics.
- All children are given the same opportunity to achieve in science.
- We want our children to have the opportunity to explore a range of resources. Through exploration, they can create their own scientific investigations to explore in class.

What amendments are made to the subject in order to help children with SEN to achieve?

- Child friendly knowledge sheets have been made for each unit and these are out on tables in every lesson. These sheets are filled with key scientific vocabulary, diagrams and key learning points for the topic.
- Science working walls are used throughout lessons and are regularly updated. The learning walls include key scientific vocabulary, relevant diagrams
- Children work in mixed ability groupings during investigative lessons, with teachers and support staff offering support when needed.
- Role cards are handed out during investigations, such as resource collector and time keeper, to ensure each member of the group has a role to play in the investigation.
- Word banks supported by visuals
- Recapping learning from last time they covered the topic before introducing new learning to consolidate knowledge and correct misconceptions.
- Where possible, we strive to use our fantastic environment to help bring science learning to life. Our forest school are frequently used to aid the learning of our pupils.

British Values

Democracy	Rule of Law	Respect and Tolerance	Individual Liberty
In the Science classroom we learn through our lessons to take into consideration the views and	In our Science lessons we learn and understand the importance of following safety rules when working	When learning and investigating during Science lessons we work as a team, supporting each other and sharing ideas	In Science we learn to confidently share our own opinions and ideas and respect the opinions of others.

<p>opinions of others. We take turns and instructions from others.</p>	<p>scientifically. Science lessons help children to understand the consequences of their actions, which in turn helps them to apply this understanding to their own lives.</p>	<p>and opinions. We discuss our findings and respect each other's work - through this we offer support and advice to others.</p> <p>Through lessons and discussion we look at scientific discoveries which have come from other cultures and how religious beliefs often compete with scientific understanding. We learn to be respectful of these beliefs and to appreciate and understand them.</p>	<p>Within our lessons pupils are encouraged to make their own choices when planning an investigation and recognise that others may have different points of view.</p>
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Belton Church of England Primary School

SCIENCE PROGRESSION STATEMENT

Achieving the Best Together

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Substantive Knowledge (Facts)

Substantive Knowledge Animals and Humans						
EYFS	KSI		LKS2		UKS2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PD & H & SC · To eat a healthy range of foodstuffs and understand a need for variety in food. · To show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. · To know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.	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	· 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.	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.	· 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.	· 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.

	associated with each sense					
Living Things						
<p>UTW - To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.</p>		<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <ul style="list-style-type: none"> 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 Identify and name a variety of plants and animals in their habitats, including micro-habitats Describe how 		<p>Recognise that living things can be grouped in a variety of ways</p> <ul style="list-style-type: none"> Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things. 	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <ul style="list-style-type: none"> Describe the life process of reproduction in some plants and animals 	<ul style="list-style-type: none"> 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 Give reasons for classifying plants and animals based on specific characteristics.

		<p>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>				
Plants						
<p>UTW</p> <ul style="list-style-type: none"> To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. 	<ul style="list-style-type: none"> 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 changes across the four seasons Observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> Reproduction of plants. 	

			<ul style="list-style-type: none"> Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 			
Vocabulary:	Plants, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud	Plants, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, light, shade, warm, cool, water, grow, healthy	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal, wind dispersal, water dispersal, animal dispersal, stamens, stigma, carpel, fertilisation, dispersal, pollen, nectar, ovule, ovary, anther, filament		reproduction, asexual, sexual	

Evolution & Inheritance

		Linked to Year 2 - Animals and Living things - offspring, habitats)	(Linked to Year 3 - rocks - fossils)		(Linked to year 5 - Living things - reproduction)	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth
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						<p>millions of years ago</p> <ul style="list-style-type: none"> 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
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Electricity

				<ul style="list-style-type: none"> Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with 		<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> <ul style="list-style-type: none"> 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 Use recognised symbols when representing a simple
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				<p>a battery</p> <ul style="list-style-type: none"> - Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - Recognise some common conductors and insulators, and associate metals with being good conductors 		<p>circuit in a diagram</p>
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Forces

<p>EAD</p> <ul style="list-style-type: none"> - To begin to be interested in and describe the texture of things. UTW - To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their 	<p>Distinguish between an object and the material from which it is made</p> <ul style="list-style-type: none"> - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock - Describe the simple physical properties of a variety of everyday 	<ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - Find out how the shapes of solid objects made from some materials can be changed by 		<ul style="list-style-type: none"> - Compare and group materials together, according to whether they are solids, liquids or gases - 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) - Identify the part 	<ul style="list-style-type: none"> - 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 - 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, 	
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<p>own immediate environment and how environments might vary from one another.</p>	<p>materials</p> <ul style="list-style-type: none"> - Compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>squashing, bending, twisting and stretching.</p>		<p>played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>sieving and evaporating</p> <ul style="list-style-type: none"> - Give reasons, based on evidence from comparative and fair tests, for 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 and the action of acid on bicarbonate of soda. 	
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Light

	<p>(Links to seasonal changes - sun safety - Introduce shadows and the sun being a source of light)</p>		<ul style="list-style-type: none"> - Recognise that they need light in order to see things and that dark is the absence of light - Notice that light is reflected from surfaces - Recognise that light from the sun can be dangerous 			<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> <ul style="list-style-type: none"> - Explain that we see things because light travels from light sources to our eyes or from light
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			<p>and that there are ways to protect their eyes</p> <ul style="list-style-type: none"> Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change 			<p>sources to objects and then to our eyes</p> <ul style="list-style-type: none"> Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
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Sound

	(Link to music -pitch/long and short sounds/dynamics and tempo)	(Link to music -pitch/long and short sounds/dynamics and tempo)		<ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns 		
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				<p>between the volume of a sound and the strength of the vibrations that produced it</p> <ul style="list-style-type: none"> Recognise that sounds get fainter as the distance from the sound source increases 		
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Earth & Space

	<p>Link to KS1 - Geography</p> <p>Seas/ Oceans</p> <p>UK</p> <p>Continents</p> <p>North/ South Poles</p>		<p>(Link to LKS2 - Geography - Climate zones, topographical features)</p> <ul style="list-style-type: none"> Geography Earth Climate zones/ topographical features) 	<ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 		
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Seasonal Changes

KUW	<p>Understand some important processes and changes in the natural world</p>	<p>Observe changes across the 4 seasons</p> <p>observe weather associated with the seasons</p>				
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around them, including the seasons	know how day length varies						
Materials/ Properties and Changing Materials							
EAD - To begin to be interested in and describe the texture of things. UTW - To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.	- Distinguish between an object and the material from which it is made - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock - Describe the simple physical properties of a variety of everyday materials - Compare and group together a variety of everyday materials on the basis of their simple physical properties	- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard, for particular uses - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		- Compare and group materials together, according to whether they are solids, liquids or gases - 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) - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	- 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 - 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, 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.	
Rocks						
			- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - Describe in simple terms how fossils are formed when things that have lived are trapped within rock - Recognise that soils are made from rocks and organic matter			

Disciplinary Knowledge (Skills)

Disciplinary Knowledge (Working Scientifically)

(5 Types of enquiry skills - Observation over time, Pattern seeking, Identifying, classifying and grouping, Comparative and fair testing, Research using secondary sources)

	KSI		LKS2		UKS2	
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning						
Having their own ideas- thinking of	Ask simple questions when prompted	Ask simple questions Recognise that	Ask relevant questions when prompted	Ask relevant questions	With prompting, plan different types	Plan different types of scientific enquiries

ideas; finding ways to solve problems; finding new ways to do things	Suggest ways of answering a question	questions can be answered in different ways	With support, set up simple and practical enquiries, comparative and fair tests	Set up simple and practical enquiries, comparative and fair tests.	of scientific enquiries to answer questions With prompting, recognise and control variables where necessary	to answer questions Recognise and control variables where necessary
Making predictions			Set up comparative tests			
Planning making decisions about how to solve a problem and reach a goal						

Conducting Experiments

Testing their ideas. Children use everyday language as they explore to talk about size, weight, capacity. They explore characteristics of everyday objects and shapes Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	Make relevant observations Conduct simple tests, with support	Observe closely, using simple equipment Perform simple tests	Make systematic observations, using simple equipment Use standard units when taking measurements	Make systematic and careful observations using a range of equipment, including technology, e.g. thermometers and data loggers Take accurate measurements using standard units, where appropriate	Select, with prompting, and use appropriate equipment to take readings (including repeat readings) Take precise measurements using standard units	Take measurements using a range of scientific equipment Take measurements with increasing accuracy and precision Take repeat readings when appropriate
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Recording Evidence

Developing ideas of grouping, sequencing, cause	With prompting, gather and record	Gather and record data to help answer questions	Record findings in various ways using	Record findings using simple scientific language, drawings and	Begin to record data and results of increasing	Record data and results of increasing complexity using
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and effect Children represent their own ideas thoughts and feelings through design and technology, art, music, dance, role play and stories.	data to help answer questions	Begin to use simple scientific language	scientific language Begin to record findings using keys, bar charts, and tables Begin to gather, classify and present data in a variety of ways to help to answer questions	labelled diagrams Record findings using keys, bar charts, and tables Gather, record, classify and present data in a variety of ways to help to answer questions	complexity using scientific diagrams and labels e.g. classification keys, tables, scatter graphs, bar and line graphs.	scientific diagrams and labels e.g. classification keys, tables, scatter graphs, bar and line graphs.
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Reporting Findings

Making links and noticing patterns Speaking: Uses talk to organise, sequence and clarify thinking and ideas Gives meaning to marks they make as the draw, write and paint Children can make observations about plants and animals and explain why some things occur and talk about changes.	Begin to identify and classify	Identify and classify	With support, report on findings from enquiries, including oral and written explanations, of results and conclusions With support, report on findings from enquiries using displays or presentations	Report on findings from enquiries, including oral and written explanations, of results and conclusions Report on findings from enquiries using displays or presentations	Begin to report and present findings from enquiries, including conclusions and causal relationships Begin to report and presents findings from enquiries in oral and written forms such as displays and other presentation Begin to report and present findings from enquiries, including explanations of, and degree of, trust in results	Report and present findings from enquiries, including conclusions and causal relationships Report and presents findings from enquiries in oral and written forms such as displays and other presentation Report and present findings from enquiries, including explanations of, and degree of, trust in results
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Predictions and Conclusions

Checking how well	Begin to use observations to	Use their observations and	Begin to identify differences, similarities or	Identify differences, similarities or	Begin to identify scientific evidence	Identify scientific
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<p>their activities are going</p> <p>Changing strategy as needed</p> <p>Reviewing how well the approach worked</p> <p>Understanding: Listens and responds to ideas expressed by others</p> <p>Children can discuss similarities and differences between living things, objects, and materials.</p>	<p>suggest answers to questions</p>	<p>ideas to suggest answers to questions</p>	<p>changes related to simple scientific ideas and processes</p> <p>Begin to use results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions</p> <p>Use straightforward scientific evidence to answer questions or to support their findings</p>	<p>changes related to simple scientific ideas and processes</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions</p> <p>Use straightforward scientific evidence to answer questions or to support their findings</p>	<p>that has been used to support or refute ideas or arguments</p> <p>Begin to use test results to make predictions to set up further comparative and fair tests</p>	<p>evidence that has been used to support or refute ideas or arguments</p> <p>Use test results to make predictions to set up further comparative and fair tests</p>
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Vocabulary Progression

EYFS					
My Body	Weather & Seasons	Animals	Food	Plants	Beach
Arm	Rain	Bird	Cow	Plant	Beach
Leg	Snow	Cow	Pig	Seed	Sand
Nose	Winter	Sheep	Chicken	Stem	Bucket
Mouth	Summer	Goat	Sheep	Water	Spade
Hand	Spring	pig	Wheat	Root	Dune
Foot	Autumn	Farm	Milk	Soil	Sea
Ear	Wind	Chicken	Cheese	Sunlight	Sandcastle
eye	sun	bear	Eggs	garden	Footprint

Science Topic	Year 1-2	Year 3-4	Year 5-6
Working scientifically	<p>experience</p> <p>observe</p> <p>changes</p> <p>patterns</p> <p>grouping</p>	<p>develop</p> <p>enquiry</p> <p>practical enquiry</p> <p>fair test</p> <p>comparative test</p>	<p>variables</p> <p>evidence</p> <p>justify</p> <p>accuracy</p> <p>precision</p>

	<p> sorting predict control experiment method classifying compare identify (name) data measure record equipment questions test investigate explore magnifying glass / hand lens same different </p>	<p> relationships conclusion accurate thermometer data logger estimate data diagram key (identifying) table chart bar chart results predictions explanation reason similarity difference question evidence information findings criteria values properties characteristics </p>	<p> scatter graphs bar graphs line graphs argument (science) causal relationship </p>
<p>Animals incl humans</p>	<p> names of common animals: fish, amphibians, reptiles, birds, mammals carnivores herbivores omnivores human body senses see hear feel smell taste habitat local environment pet wild animal insect minibeast food eat head neck body </p>	<p> nutrition diet skeleton muscles protection support movement bones skull shell digestive system stomach small intestine large intestine oesophagus types of teeth: molar, pre- molar, incisor, canine saliva </p>	<p> puberty gestation period circulatory system heart lungs blood vessels blood lifestyle disease water transportation nutrient transportation oxygen air breathing exercise diet drugs </p>

	<p>arms legs ears eyes nose mouth tongue hands feet fingers toes elbows knees hair teeth grow healthy offspring adults young water air survive exercise hygiene egg chick chicken caterpillar pupa moth butterfly tadpole frog frog spawn lamb sheep calf cow foal horse</p>		
Plants	<p>plants wild plants garden plants evergreen trees deciduous trees common flowering plants flowers vegetables leaf/leaves</p>	<p>functions nutrients nutrition air transport (water) life cycle pollination seed formation seed dispersal</p>	

	<p>flower blossom petal stem trunk branch root seed bulb bud growth grow habitat local environment leaf fall water light oxygen/ carbon dioxide temperature healthy growth survive soil germinate stages of growth</p>	<p>reproduce fertiliser</p>	
<p>Living things and their habitats (incl. evolution and inheritance)</p>	<p>pond garden field park woodland sea shore river ocean forest rainforest stones rocks logs leaf litter habitat micro-habitat living dead not living alive healthy food food chain depend source of food shelter grow</p>	<p>environment non-flowering plants ferns mosses flowering plants grasses vertebrate animals: fish, birds, mammals, amphibians, reptiles invertebrate animals: snails, worms, slugs, spiders, insects human impact - litter, deforestation, population increase, nature reserves</p>	<p>life cycles reproduction life processes sexual and asexual reproduction (plants) root cuttings classification microorganisms organisms evolution evolve adaptation variation inherit inheritance</p>

	<p>growth healthy</p>		
Materials	<p>everyday materials wood paper plastic metal glass water rock brick stone fabric material foil elastic dough rubber card cardboard clay object make/made hard/soft shiny/dull stretchy/stiff rough/smooth bendy/not bendy waterproof/not waterproof transparent/opaque absorbent/not absorbent squash twist bend stretch</p>		<p>properties hardness solubility transparency electrical conductivity thermal conductivity magnetism dissolve solution substance separating mixing filtering sieving reversible change burning rusting reactions irreversible change</p>
Rocks and soils		<p>rock soil fossil organic matter grains crystals sedimentary rock</p>	
States of matter		<p>solid liquid gas temperature heat (heating) cool (cooling) water cycle evaporation condensation</p>	

		melting freezing	
Earth and space	seasons seasonal change spring summer autumn winter weather sun sunshine rain snow sleet ice frost fog cloud hot cold storm sky earth night day		solar system planets: Mercury, Venus, earth, Mars, Jupiter, Saturn, Neptune, Uranus moon stars spherical bodies rotation orbit satellite
Electricity		electricity simple circuit light bulb cell wire buzzer switch motor battery series circuit conductor insulator	voltage components symbols circuit diagram
Forces		Move Movement Surfaces forces push pull contact distance magnet bar magnet ring magnet horseshoe magnet attract	pole repel magnetic gravity air resistance water resistance friction levers pulleys gears springs



Belton Church of England Primary School

Science Rolling Programme

Cycle A

Term	Year 1 and 2	Year 3 and 4	Year 5 and 6
Autumn 1	Growth Animals incl Humans	Light	Studying Living Things Living things and their habitats (5)
	Adelle Davis (Biochemist & Nutritionist who linked health and diet)	Percy Shaw (Inventor of the cat's eye)	David Attenborough - links to free resources requiring a login (Naturalist & TV Presenter) Jane Goodall (Wildlife Researcher & Conservationist who studied chimpanzees)

Autumn 2	Exploring everyday materials Everyday materials	Animals incl Humans - yr 3 Skeletons & Food	Living Things & their Habitats (6)
	Chester Greenwood (Inventor of earmuffs)	Marie Curie (Physicist who invented the first mobile x-ray machine to treat soldiers wounded on the battlefield in WWI) Adelle Davis (Biochemist & Nutritionist who linked health and diet)	Carl Linnaeus (Botanist & Zoologist who developed a taxonomy for classifying organisms) Agnes Arber (Botanist and first woman to become a fellow of the Royal Society who studied aquatic flowering plants and monocots, a group of flowering plants) Beatrix Potter (Mycologist study of fungi and Scientific Illustrator)
Spring 1	Plants - Yr 1 Look at seasonal change and how this affects plant growth.	Animals incl Humans Digestion	Changes of materials
	Maria Sibylla Merian (German artist, scientific illustrator, and naturalist) Beatrix Potter	William Beaumont (Surgeon who first observed and studied human digestion as it occurs in the stomach) Washington & Lucius Sheffield (Dentists who invented toothpaste in a tube)	Raquel Prado (Chemist who develops a sustainable fabric that looks like leather but comes from pineapple leaves that would otherwise be burnt) Jamie Garcia - links to free resources requiring a login (Chemist who discovered a fully recyclable plastic)
Spring 2	Exploring everyday materials 2 - 3 Little Pigs Materials	States of Matter	Evolution and Inheritance
	Becky Schroeder - links to free resources requiring a login (Inventor of Glo-sheets which she patented as a 12-year-old)	Joseph Priestley (Clergyman who discovered oxygen at about the same time as Carl Wilhelm Scheele) Carl Wilhelm Scheele	Charles Darwin - links to free resources requiring a login (Natural Historian who developed the theory of evolution by natural selection) Alfred Wallace

		<p>(Chemist who discovered oxygen at about the same time as Joseph Priestley)</p> <p>Daniel Fahrenheit (Physicist who invented the Fahrenheit temperature scale and the thermometer)</p>	<p>(Natural Historian who developed the theory of evolution by natural selection)</p> <p>Emma Dunne (Palaeobiologist who investigates how ancient climate change affected the evolution of different species)</p> <p>Telma Laurentino (Evolutionary Biologist who measures differences in the colour of lizards that live in white desert sands to find differences in their genes which might have allowed them to survive in such an extreme environment)</p>
Summer 1	<p>Life Cycles Animals incl humans</p>	<p>Classifying Living Things and Their Habitats - yr 4</p>	<p>Forces</p>
	<p>Dr Kelly Blacklock (Veterinary Surgeon)</p>	<p>Wangari Maathai - search document for information (Biologist & Environmental Activist awarded the 2004 Nobel Peace Prize for her contribution to sustainable development)</p> <p>Kelsey Archer Barnhill (Deep Sea Ecologist who sends robots to the seafloor to collect samples of different animals to study)</p>	<p>Galileo Galilei - links to free resources requiring a login (Astronomer, Mathematician & Physicist who was the first person to use the scientific method to test theories about gravity and the Solar System)</p> <p>Isaac Newton - links to free resources requiring a login (Mathematician & Physicist who developed theories about gravity)</p> <p>Brahmagupta - search document for information (Mathematician & Astronomer who was the first scientist to talk about gravity)</p>
Summer 2	<p>Living Things and Their Habitats</p>	<p>Electricity</p>	<p>Also puberty sessions for yr 5/ 6 separately - these need to be taught first</p> <p>Blood + Transportation Heart Health Animals, including humans</p>
	<p>Prem Singh Gill (Polar Scientist who studies where Antarctic seals live, breed and feed, so we can know more about where they prefer to live)</p>	<p>Thomas Edison (Inventor of the lightbulb and power grid)</p>	<p>William Harvey (Doctor who discovered the nature of blood circulation and the function of the heart as a pump)</p>

Cycle B

Term	Year 1 and 2	Year 3 and 4	Year 5 and 6
Autumn 1	About Me Animals incl Humans	Forces	Properties of materials
	Leonardo Da Vinci (Anatomical drawing, 'Vitruvian Man')	William Gilbert (Doctor who developed the theory of magnetism) Leonardo Da Vinci - search document for information (First person to plan and carry out tests on friction)	Spencer Silver & Arthur Fry (Chemical Engineer & Chemist respectively who invented the post-it note) Ruth Benento (Chemist who developed wrinkle-free cotton fabric)
Autumn 2	Seasonal changes	Plants	Light
	Jim Cantore (Meteorologist and storm tracker)	Jan Ingenhousz (Doctor & Scientist who discovered the process of photosynthesis) Dr Kelsey Byers (Biologist who studies flower smells and how they attract insects) Jagadish Chandra Bose - search document for information (Biophysicist who measured plant response to different stimuli)	Euclid - search document for information (Mathematician who predicted that light travels in straight lines and we only see things that light falls on) Ibn al-Haytham (Alhazen) (Physicist & Mathematician who developed a theory that light travels in a straight line, and proved it by carrying out the first scientific experiment)
Spring 1	About Animals Animals, including humans	Conservation Living Things & Their Habitats	Electricity
	Joan Beauchamp Procter - search document for information (Herpetologist and Curator of Reptiles, London Zoo)	Wangari Maathai - search document for information (Biologist & Environmental)	Nikola Tesla - links to free resources requiring a login (Electrical & Mechanical Engineer who developed the AC electrical system and made important

	<p>Tanesha Allen (Zoologist who studies badgers)</p>	<p>Activist awarded the 2004 Nobel Peace Prize for her contribution to sustainable development)</p>	<p>advances in technologies such as x-rays, neon lights and robotics)</p> <p>Alessandro Volta (Physicist who developed the electric battery)</p> <p>Mildred S Dresselhaus (Materials Scientist whose research led to the development of the rechargeable batteries in all modern electronic equipment)</p>
Spring 2	<p>Plants - year 2 Plants Need to also teach Year 1 Identify and describe the basic structure of common flowering plants, incl trees.</p>	<p>Sound</p>	<p>Animals incl Humans - year 5</p>
	<p>Daniel Solander (Botanist who worked with Joseph Banks on Captain Cook's voyage around the World)</p> <p>Joseph Banks (Naturalist on Captain Cook's voyage around the World)</p> <p>Poppy Oketcha (Horticulturalist interested in the connection between healthy environments, healthy food, and healthier people)</p>	<p>Aristotle (Philosopher who developed the concept that sound travels through air due to the movement of air particles)</p> <p>Isaac Newton - search document for information (Mathematician & Physicist who measured the speed of sound)</p>	<p>Virginia Apgar (Doctor & Medical Researcher who developed a method of evaluating the well-being of new-born babies)</p>
Summer 1	<p>Uses of Everyday materials - Year 2 Look at year 1 objectives Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials incl rocks, glass, water, plastic</p>	<p>Scientific Enquiry</p>	<p>Space</p>
	<p>Charles Macintosh - links to free resources requiring a login (Chemist and inventor of waterproof clothing)</p> <p>John McAdam</p>		<p>Nicolaus Copernicus (Astronomer who developed the theory that the Sun was at the centre of the Solar System around which the planets orbited)</p> <p>Johannes Kepler - search document for information</p>

	<p>(Inventor of the modern road surface)</p> <p>Dr Pearl Agyakwa (Materials scientist who studies why some materials wear out and other don't)</p>		<p>(Mathematician, Astronomer and Astrologer who developed the theory that the planets moved on oval paths around the Sun)</p> <p>Mae Jemison (Astronaut and first Black woman in space)</p> <p>Helen Sharman (Astronaut who was the first British citizen to go into space)</p> <p>Tim Peake (Astronaut who was the first British person to walk in space)</p>
Summer 2	<p>Habitats from around the World</p> <p>Living Things and their Habitats</p> <p>Seasonal changes</p>	Rocks	Looking after the environment
	<p>Prem Singh Gill (Polar Scientist who studies where Antarctic seals live, breed and feed, so we can know more about where they prefer to live)</p>	<p>Florence Bascom (Geologist who studied the origin and formation of mountains)</p> <p>Anjana Khatwa (Geologist who collects rocks and fossils from the beach and studies them to learn about the creatures that lived in the sea and on Earth over 150 million years ago)</p>	Lisa Borini - Conservationist and TV Presenter

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Achieving the Best Together

I have come that they may have life in all its fullness - John 10:10

