

The Natural World
Explore the natural world around them making observations and drawing pictures of animals and plants. Know that 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 changes in the natural world around them e.g. seasons and changing states of matter.

Animals including Humans
Are we all the same or are we all different?
Are all animals totally different?

Everyday Materials
Are all materials the same?

Seasonal Changes.
Is the weather the same everyday?

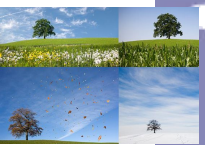
Plants
What are the parts of a plant?

Everyday materials and their uses.
What materials could be used to make Santa's Sleigh?

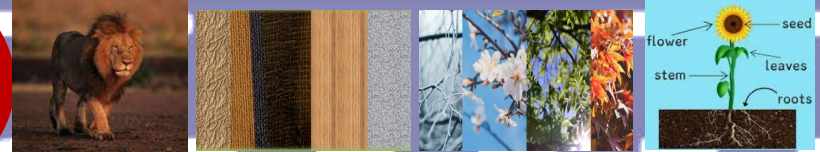
Living Things and Life cycles
Is everything on Earth alive?
Do plants grow the same amount everyday?

Plants and Animals including Humans
Is all food good for us?
Do all animals start off small?

EYFS



Year One



Year Two



Key Stage 1
Introduce children to science being a way to understand our world by carefully thinking about it and testing our guesses by observation and experiments through first hand practical experiences. They should be encouraged to be curious and ask questions. Observe changes, notice patterns, group and classify and use secondary sources of information.

Explore the natural world around them, observe and 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 and a boat floating on water. Describe what they see, hear and feel whilst outside including plants and animals. Recognise some environments that are different from the one in which they live. Understand the effect of changing seasons on the natural world around them.

Electricity
Does electricity flow easily through all objects?

Sound
How do instruments make different sounds?

Animals including Humans
How can we know things about a dinosaur when they have been extinct for 65 million years?

Forces and Magnets
Are all metals attracted to magnets?

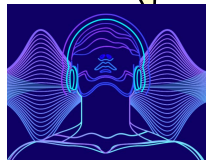
Rocks and Fossils
Are all rocks made the same way?

Plants and Animals
Do all plants need exactly the same things?
How does our body move and stand up?

Year Three

In KS2,
Children will continue to be exposed to scientific experiences and raise their own questions about the wider world around them and how it operates. They should develop their enquiry skills and notice relationships and patterns. They will learn to work scientifically to make predictions and draw conclusions based on data collected. They should build upon their scientific language to discuss their ideas and communicate their findings.

Solids, Liquids and Gases
Does water always melt at the same speed?



Year Four



Light
Does the amount of light we experience only change a lot at night?
Why do shadows change during the day?



Year Five

Living Things and their Habitats
Are some animals more alike than others?

Earth and Space
What shape is the moon and does it change?

Forces
How do parachutes work?

Light
Why can I hear round corners but not see round corners?

Living Things and their Habitats
What makes bread rise?

Evolution and Adaptation
Why do different species of animals look different?



Year Six



Living Things and their Habitats
If life has existed for billions of years why are there still people alive today?

Properties and changes of materials
What happens to salt in water?
Can I make a gas using a solid and a liquid?
Is it possible to separate even very small things like sand, salt and stones?

Electricity
Is it possible to change how bright a bulb is or how loud a buzzer is?

Animals including Humans
Is our heart rate always the same?
How long does it take to get fitter?

Woodborough CofE Primary School's Science Curriculum Progression



Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> ● Opportunities for outdoor play and exploration. ● Give children freedom to touch, smell and hear the natural world around them during hands-on experiences. ● Discuss how we care for the natural world around us. ● After close observation, draw pictures of the natural world, including animals and plants. ● Observe and interact with natural processes, such as ice melting ● Focused observation of the natural world. ● Listen to children describing and commenting on things they have seen whilst outside, including plants and animals. *Name and describe some plants and animals ● Discuss weather and seasonal features. Provide opportunities for children to note and record the weather. *observe the natural world and encourage children to observe how animals behave differently as the seasons change. Look for children incorporating their understanding of the seasons and weather in their play. 	<ul style="list-style-type: none"> ● Know that we can ask questions about the world and that when we observe the world to answer these questions, this is science ● Know that we can use magnifying glasses to observe objects closely ● Know that we can test our questions to see if they are true ● Know that objects can be identified or sorted into groups based on their observable properties ● Know that we can write down numbers and words or draw pictures to record what we find 		<ul style="list-style-type: none"> ● Know that we can ask questions and answer them by setting up scientific enquiries ● Know how to make relevant predictions that will be tested in a scientific enquiry ● Know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other conditions are kept the same ● Know how to use a range of equipment to measure accurately, including thermometers, data loggers, rulers and stopwatches ● Know how to draw bar charts; how to label a diagram using lines to connect information to the diagram; how to use a coloured key how to draw a neat table; how to draw a classification key; how to show the relationship between an independent variable in a two-way table; and how to label specific results in a two-way table ● Know how - with structured guidance - to write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of results and a conclusion ● Know how to precis a scientific enquiry write-up into a brief oral discussion of what was found in a scientific enquiry ● Know that scientific enquiries can suggest relationships, but that they do <u>not</u> prove whether a prediction is true ● Know that scientific enquiries are limited by the accuracy of the measurements (and measuring equipment) and by the extent to which conditions can vary even, and that repeating enquiries, measurements and taking measures to keep conditions as consistent as possible can improve an enquiry ● Know that the conclusions of scientific enquiries can lead to further questions, where results can be clarified or extended to different contexts (e.g. effect of changing sunlight on a plant - does this work with other plants / different types of light / etc) ● Know that they can draw conclusions from the findings of other scientists ● Know that a theory is an explanation of observations that has been tested to some extent and that a hypothesis is an explanation that has not yet been tested, but that can be tested through a scientific enquiry 		<ul style="list-style-type: none"> ● Know how to choose appropriate variables to test a hypothesis (e.g. plant height as a dependent variable when measuring effect of light on plant growth) ● Know how to identify conditions that were imperfectly controlled and can explain how these might affect results ● Know how to accurately use further measuring devices, including digital and analogue scales, measuring cylinders and beakers, recognizing the relative accuracy of each device ● Know how and when to repeat measurements, how to find an average of a set of measurements and how to recognize and remove outliers from a set of data, justifying the removal as a potential mis-measurement ● Know how to independently write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of results and a conclusion ● Know how to present brief oral findings from an enquiry, speaking clearly and with confidence and using notes where necessary ● Know examples of instances where scientific evidence has been used to support or refute ideas or arguments (e.g. fossil records as evidence of natural selection) 	

Year 1

<u>Topic</u>	<u>Small Question</u>	<u>Enquiry</u>	<u>Enquiry Type</u>	<u>Possible Cross Curricular Links</u>
Animals and humans	Are we all the same or are we all different?	Chdn discover what is the same and what is different about their bodies.	Noticing patterns	Oracy: Comparative language
Animals and humans	Are all animals totally different?	Using pictures of animals, chdn find out if they can find anything that is the same for all of the animals, thinking about what they do and how they look. Show smaller and larger versions of each animal.	Noticing patterns	
Everyday materials	Are all materials the same?	Chdn compare a variety of materials, deciding which are hard, soft, strong, weak, smooth, rough, etc.	Simple comparative test	Measures: mass and weight
Everyday materials	Are all materials the same?	Chn undertake actions to test whether each material has the property (e.g. touching, weighing, etc)	Simple comparative test	
Seasonal changes	Is the weather the same every day?	Chn keep a weather diary across a period of time and compare this to a pre-made one for a different period of the year, drawing conclusions.	Observing over time Noticing patterns	Sequence events in chronological order.
Plants	What are the parts of a plant?	Chn use pages from a science encyclopaedia to draw and label different plants, spotting similarities and differences.	Finding out things from secondary sources	Reading: developing pleasure for reading.

Year 2

<u>Topic</u>	<u>Small Question</u>	<u>Enquiry</u>	<u>Enquiry Type</u>	<u>Possible Cross Curricular Links</u>
Use of Everyday materials	What materials could be used to make a good raincoat?	Chn test whether different materials are waterproof, flexible and light.	grouping and classifying simple comparative test	Venn and Carroll Diagrams
Uses of Everyday materials	What materials could be used to make a good bike shed?	Chn test whether different materials are strong, hard and waterproof	grouping and classifying simple comparative test	
Living Things and Life Cycles	Is everything on Earth alive?	Chn sort pictures and specimens into <i>alive</i> , <i>dead</i> , and <i>never alive</i> . (Include misconceptions like the sun and the sea.)	grouping and classifying	
Living Things and Life Cycles	Do plants grow the same amount every day?	Chn measure the height of a growing plant over a period of days and weeks	observing over time	Measures (cm and m)
Plants and Animals Including Humans	Is all food good for us?	Chn look at a variety of food labels (looking at the traffic light nutrition), comparing which are healthy and why.	finding out using secondary sources	Reading: finding and retrieving
Plants and Animals Including Humans	Do all animals start off small?	Chn pair up pictures of a variety of animals with their very young and juvenile forms.	noticing patterns	Repeating Patterns

Year 3

Area of Science	Small Question	Enquiry	Enquiry Type	Possible Cross Curricular Links
Light	Does the amount of light we experience only change a lot at night?	Using 'Lux' ipad app, chn gather data on light levels over the period of an hour and over the period of 24 hours. Chn interpret the gathered data.	Observing over time	Interpret and present data using bar charts, pictograms and tables
Light	Why do shadows change during the day?	On a sunny day, using a metre stick, chn note the changing length of a shadow thrown by a metre stick or other object.	Observing over time	Measure, compare, add and subtract: lengths (m/cm/mm)
Rocks and Fossils	Are all rocks made in the same way?	Using criteria, chn sort rock samples (and pictures) into the three types.	Grouping and classifying	Venn and Carroll Diagrams Explanation text
Forces and Magnets	Are all metals attracted to magnets?	Chn sort materials into magnetic and non-magnetic materials using a magnet and find other materials around the room that	Grouping and classifying	
Plants and Animals	Do all plants need exactly the same things?	Chn give both a parsley plant and a small cactus minimal water over a two week period and observe the changes (perhaps drawing the result)	Observing over time Comparative test	Compare duration of events. Use a range of digital devices to observe and record changes over a period of time and Interpret and present data using bar charts, pictograms and tables
Plants and animals	How does our body move and stand up?	Chn use information from science encyclopaedias / textbooks to label a human skeleton and answer simple questions about it.	finding out things from secondary sources	

Year 4

Topic	Small Question	Enquiry	Enquiry Type	Possible Cross Curriculum Links
Animals Including Humans	How can we know things about a dinosaur when they have been extinct for 65 million years?	Following learning about human teeth, chn use information and pictures of different teeth from dinosaurs to try to work out what they might have eaten, justifying their answers. (Use language of carnivore, omnivore and herbivore.)	finding out using secondary sources grouping and classification	articulate and justify answers, arguments and opinions They should understand how our knowledge of the past is constructed from a range of sources.
Sound	How do instruments make different sounds?	Chn to make a basic guitar or flute with different notes possible to show how different vibrations make notes of different pitch.	noticing patterns	listen with attention to detail and recall sounds. Identify pitch. select from and use a wider range of materials and components, including construction materials and textiles, according to their functional properties and aesthetic qualities
Electricity	Does electricity flow easily through all objects?	Chn to create a small circuit to test whether objects are conductors or insulators (e.g. circuit with bulb which lights when a gap in the circuit is bridged.)	grouping and classification comparative test	composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures (See English Appendix 2) organising paragraphs around a theme
Solids, Liquids and Gases	Does water always melt at the same speed?	Chn to observe and record as ice melts in different conditions (e.g. outside vs radiator, wrapped in insulation vs not)	observing over time comparative test (beginning to include elements of fair testing)	count backwards through 0 to include negative numbers (temperature)
Living Things and Their Habitats	Are some animals more alike than others?	Children to use pictures to put animals into groups in different ways (e.g. where they live, what they eat, how they move, how many legs, etc) moving on to using keys to differentiate between closely related animals.	grouping and classification	Increasingly complex venn and carroll diagrams. Oracy
Living Things and Their Habitats	Are some animals more alike than others?	Children to use descriptions to put animals into groups in different ways (e.g. where they live, what they eat, how they move, how many legs, etc) moving on to using keys to differentiate between closely related animals.	grouping and classification	

Year 5

Topic	Small Question	Enquiry	Enquiry Type	Possible Cross Curricular Links
Earth and Space	What shape is the moon and does it change?	Chn keep a moon diary over the period of a month (focusing on moon shape) and a moon diary for one clear evening (focusing on position in the sky) and analyse their results.	Observing over different periods of time.	Measurement- solve problems involving converting between units of time Statistics- solve comparison, sum and difference problems using information presented in a line graph
Forces	How do parachutes work?	Chn to create parachutes, changing a variable to try to isolate what is needed for an effective parachute (e.g. changing parachute material, size, shape, etc)	Fair testing	Statistics- complete, read and interpret information in tables, including timetables.
Properties and Changes of Materials	What happens to salt in water?	Chn to stir a small amount of salt, sugar, small stones and sand into water and to observe what happens with each and to determine which is soluble in water and which is insoluble in water	Grouping and classifying	Measurement- estimate volume and capacity Convert between different units of metric measure
Properties and Changes of Materials	Can I make a gas using a solid and a liquid?	Chn add vinegar (ethanoic acid) to bicarbonate of soda and observe the reaction, specifically the bubbles of carbon dioxide given off	Observing over different periods of time	History- Pre-Roman Britain- Production of Bronze and iron with changing materials Oracy- Explanation of method for separating gas from solids and liquids.
Properties and Changes of Materials	Is it possible to separate even very small things like sand, salt and stones?	Chn use filtering and evaporation to separate a mixture of sand, salt and stones.	Noticing patterns	
Living Things and Their Habitats	If life has existed for billions of years, why are there still people alive today?	Chn use a variety given information and online resources to research and describe the life cycles of different animals, looking for the similarities between each.	Finding out using a wide variety of secondary sources	Computing- Use search technologies effectively, be discerning in evaluating digital content

Year 6

<u>Topic</u>	<u>Small Question</u>	<u>Enquiry</u>	<u>Enquiry Type</u>	<u>Possible Cross Curricular Links</u>
Light	Why can I hear round corners but not see round corners?	Chn to use mirrors and torches to investigate how light travels in straight lines and reflects off mirrors.	noticing patterns	draw 2-D shapes using given dimensions and angles
Electricity	Is it possible to change how bright a bulb is or how loud a buzzer is?	Chn create circuits to investigate the effect of different voltages on different components.	Noticing patterns	
Living Things and Their Habitats	What make bread rise?	Chn are shown how yeast, sugar and warm water causes a reaction; they then investigate what happens to this reaction when they change particular variables of their choice (sugar/no sugar, water temperature, adding chemicals, etc)	Observing over different periods of time Fair testing	use, read, write and convert between standard units, converting units of measurements from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places.
Evolution and Adaptation	Why do different species of animals look different?	Chn sort various species of animals into the environments in which they are adapted based on their physical attributes and listed behaviours	Grouping and classifying	Increasingly complex venn and carroll diagrams. Interpret and construct pie charts and line graphs and use these to solve problems
Animals Including Humans	Is our heart rate always the same?	Chn to investigate the effect of exercise on heart rate and how long it takes for their pulse to return to the resting rate after exercising for a minute.	Noticing patterns	Interpret and construct pie charts and line graphs and use these to solve problems
Animals Including Humans	How long does it take to get fitter?	Over the course of a month, chn investigate whether some volunteers (who do consistent exercise at break time) can lower their resting heart rate.	Observing over different periods of time.	Calculate and interpret the mean as an average.

Non fiction texts: EYFS

Natural World	Body
<p>Secrets of the Vegetable Garden: A Shine-a-Light Book - Carron Brown</p> <p>It Starts With a Seed - Laura Knowles & Jennie Webber</p> <p>Plants (Amazing Science) - Sally Hewitt</p> <p>A Seed is Sleepy - Dianna Aston & Sylvia Long</p> <p>At the Same Moment Around the World by Clotilde Perrin</p> <p>Heads and Tails Insects by John Carty</p> <p>Night Time Around the World – Moon by Britta Teckentrup</p> <p>10 things I Can Do To Help My World by Melanie Walsh</p> <p>A Cool Drink of Water by Barbara Kerley</p> <p>A First Book of Nature - Nicola Davies & Mark Hearld</p> <p>Penguins - Anne Schroeber</p>	<p>Human Body (Shine-A-Light) - Carron Brown & Rachael Saunders</p> <p>Let's Make Faces - Hanoch Piven</p> <p>Look Out! How We Use Our Five Senses! - Leon Read and Sean Sims</p>

Non fiction texts: Year 1

Plants	Animals including humans	Everyday materials	Seasonal changes
<p>A little guide to wild flowers- Charlotte Voake</p> <p>The things that I love about trees- Chris Butterworth</p> <p>Ten Seeds- Ruth Brown</p>	<p>A Butterfly Is Patient Dianna Hutts Aston & Sylvia Long</p> <p>The Bee Book Charlotte Milner</p> <p>Moth Isabel Thomas & Daniel Egnéus</p>	<p>'Water: Exploring the Science of Everyday Materials' by Jane Harris</p> <p>'Material Detectives Water: Let's Look at a Puddle' by Angela Royston</p> <p>'Wood (Materials)' by Claire Mayer</p>	<p>Tree: Seasons come, seasons go- Patrica Hegarty</p> <p>A Year in Nature: A Carousel Book of the Seasons Hazel Maskell & Eleanor Taylor</p> <p>Why Do Leaves Fall From Trees? Ruth Owen</p>

Non fiction texts: Year 2

Everyday materials and their uses.	Living Things and Life cycles	Plants and Animals including Humans
<p>'Rock: Let's Look at Pebbles' by Angela Royston</p> <p>'The Drop That Goes Plop: A First Look at the Water Cycle' by Sam Godwin and Simone Abel</p> <p>'Sheep to Jumper' by Fiona MacDonald</p>	<p>It starts with a seed -Laura Knowles</p> <p>From seed to plant- Gail Gibbons</p>	<p>Professor Astro Cat's human body odyssey -Dominic Walliman</p> <p>What's eating you? Nichola Davies</p> <p>You Choose-Nick Sharratt</p> <p>Human body- Carron Brown</p> <p>Eddie's Garden- Sarah Garland</p> <p>Olivers vegetables- Vivian French</p> <p>A little guide to wildflowers -Charlotte Voake</p> <p>Plant- Sally Hewitt</p>

Non fiction texts: Year 3

Light	Rocks and fossils	Forces and magnets	Plants and animals
Science bug - light and dark -Pearson	A pebble in my pocket- Meredith Hooper The rock factory -Jacqui Bailey Street beneath my feet- Yuval Zommer Stone Girl Bone girl Fossil Hunter This little pebble -Sally Garland	Iron Man	Big book of blooms - Zommer Under the canopy- Volant Amazing science - plants

Non fiction texts: Year 4

Animals including humans	Sound	Electricity	Solids,liquids, gases	Living things and habitats
Variety of life -Davies Creature Features- Durley	SCISP Sound:its uses and misuses	Cool circuits and Wicked wires Charging about- Lilly DK find out about electricity	Solids, liquids and gases -Rookie Solids, liquids and gases -lets investigate -owen	How to help a hedgehog and protect a polar bear Disappearing acts -Blundell Habitats (Science skills sorted) -Claybourne

Non fiction texts: Year 5

Earth and space	Properties of materials	Forces	Living things and habitats
<p>Dr Maggies Grand tour of space</p> <p>The international space station -Glifford</p> <p>Earth is big -Tomecek</p> <p>The Solar system -Usbourne</p>	<p>Properties and changes of materials</p>	<p>Forces -Foxton</p> <p>The aerodynamics of biscuits -Weisch</p> <p>Isaac newton and physics for kids -Hollihan</p>	<p>How to help a hedgehog and protect a polar bear</p> <p>Disappearing acts -Blundell</p> <p>Habitats (Science skills sorted) -Claybourne</p>

Non fiction texts: Year 6

Light	Electricity	Living things	Evolution and adaptation	Animals including humans
Alhazan - light and sight	Cool circuits and Wicked wires Charging about- Lilly DK find out about electricity	The variety of life- Scobie Life cycles- everything from start to finish -DK	Darwin -origin of species Darwin and evolution for kids- Lawson All about evolution-Robert Winston Evolution and inheritance - Foxtan	Variety of life -Scobie Illuminatomy- Davies and Carnovsky Journey through the digestive system -Sohn