

Science Long term Map Overview 2022- John Blow Primary School

Level Expected at the End of EYFS

We have selected the most relevant statements from Development Matters age ranges for Three and Four-Year-Olds and Reception as well as highlighting the statements within the ELGs which feed into the programme of study for Science.

For more detail about linked subject progression within the EYFS Framework, please refer to the EYFS Framework.

Science		
Three and Four-Year-Olds	Communication and Language	<ul style="list-style-type: none">Understand ‘why’ questions, like: “Why do you think the caterpillar got so fat?”
	Personal, Social and Emotional Development	<ul style="list-style-type: none">Make healthy choices about food, drink, activity and toothbrushing.
	Understanding the World	<ul style="list-style-type: none">Use all their senses in hands-on exploration of natural materials.Explore collections of materials with similar and/or different properties.Talk about what they see, using a wide vocabulary.Begin to make sense of their own life-story and family’s history.Explore how things work.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.Explore and talk about different forces they can feel.Talk about the differences between materials and changes they notice.

Reception	Communication and Language		<ul style="list-style-type: none"> • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts.
	Personal, Social and Emotional Development		<ul style="list-style-type: none"> • Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • toothbrushing • sensible amounts of ‘screen time’ • having a good sleep routine • being a safe pedestrian
	Understanding the World		<ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
ELG	Communication and Language	Listening, Attention and Understanding	<ul style="list-style-type: none"> • Make comments about what they have heard and ask questions to clarify their understanding.
	Personal, Social and Emotional Development	Managing Self	<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.
	Understanding the World	The Natural World	<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 and changing states of matter.

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
ELM Focus						
Objectives						
PINE Focus	Seasonal Changes: Observe changes across the seasons. Observe and describe weather associated with seasons and how day length varies.	Everyday Materials: Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials.	Animals Including Humans: Identify and name common animals and identify which are carnivores, herbivores and omnivores. Describe and compare structure of common animals. Identify and name basic parts of human body and identify which is associated with each sense.	Everyday Materials: Describe simple physical properties of materials. Compare and group a variety of materials according to their properties.	Plants: Name and identify common wild and garden plants, including deciduous and evergreen trees. Identify and describe basic structure of a variety of common flowering plants, including trees.	
Skills	https://www.reachoutcpd.com/courses/lower-primary/seasonal-changes/ Scientific enquiry – Make a table/chart <i>-They recognise texts can give information.</i> <i>-Describe or respond appropriately to simple features of objects, living things and events they observe.</i> <i>-They communicate their findings in simple drawings</i>	https://www.reachoutcpd.com/courses/lower-primary/everyday-materials/ Scientific enquiry – What is the best material for a house? Link to 3 little pigs and the 3 little wolves <i>-Respond to suggestions of how to find things out</i>	https://www.reachoutcpd.com/courses/lower-primary/humans-and-other-animals/ Scientific enquiry – compare and contrast animals, grouping them according to what they eat. Can you taste without your nose? (apple vs raw potato) <i>-Describe or respond appropriately to simple features of objects, living things and events they observe.</i>	https://www.reachoutcpd.com/courses/lower-primary/everyday-materials/ Scientific enquiry – What is the best material for a beach towel? (Chocolate teacup) <i>-Respond to suggestions of how to find things out</i> <i>-Understand the meaning of fair</i> <i>-Say what they think will happen.</i> <i>-Under direction use simple equipment provided.</i>		
Vocabulary	<i>Season, Spring, Summer, Autumn, Winter, weather, temperature, daylight, hour</i> <i>Scientific vocabulary: measure, observe, identify (name), record</i>	<i>Material, object, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, property, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, opaque, transparent</i> <i>Scientific vocabulary: measure, observe, identify (name), record</i>	<i>Fish, amphibian, reptile, bird, mammal, carnivore, herbivore, omnivore, pet, wild, habitat, head, neck, arm, elbow, leg, knee, ear, eye, hair, mouth, teeth, sense, sight, smell, taste, hearing, touch.</i>	<i>Material, object, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, property, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, opaque, transparent</i> <i>Scientific vocabulary: measure, observe, identify (name), record</i>	<i>tree, plant, deciduous, evergreen, leaf, flower, blossom, petal, fruit, roots, seed, bulb, vegetables, trunk, branches, stem, bud, daisy, dandelion, nettle, dock, buttercup, clover, rose, poppy, pansy, snowdrop, primrose, foxglove, daffodil, bluebell</i> <i>Scientific vocabulary: observe, measure</i>	
Knowledge	To know that different seasons have different features To compare different seasons To understand how the daylight changes across the year	To know the difference between objects and the material they are made from To begin to compare features of materials	To understand that different animals eat different things. To understand that animals have different features	To compare the properties of materials and group different materials by their property To identify the suitability of a material for a particular purpose	To understand that trees and plants change according to the season Name and identify common forms of wild and garden plants	

			To understand how humans and animals use their senses To begin to understand the common features of groups of animals e.g. birds, fish		Know the main parts of a plant: root, stem, leaf, flower	
OAK Focus	Living things and their habitats	Animals including humans	Use of everyday materials		Plants	
Objectives	<ul style="list-style-type: none">- explore and compare living, dead and never alive- habitats for animals and plants- name plants and animals in (micro)habitats- food chains- sources of food Scientific enquiry: - classifying animals (living, dead or alive) - nature walk – how do conditions affect animals/plants that live in a (micro)habitat - build a bug hotel <ul style="list-style-type: none">• They use simple texts, with help to find information.• With help, make their own suggestions about how to collect data to answer questions.• They make observations related to their task.• Independently use simple equipment provided.• Communicate their findings through drawings and simple charts. https://www.reachoutcpd.com/courses/ Practical: Animal in the classroom, nature walks, hunting for minibeasts, building a bug hotel, cross curricular	<ul style="list-style-type: none">- animals have offspring- basic needs of animals- importance of exercise, eating different types of foods and hygiene Scientific enquiry: - How do animals grow? - What do animals need to stay healthy? <ul style="list-style-type: none">• They use simple texts, with help to find information.• With help, make their own suggestions about how to collect data to answer questions.• Under direction, identify how their test is fair.• They make observations related to their task. https://www.reachoutcpd.com/cours es/	<ul style="list-style-type: none">- suitability of everyday materials- explore how shapes of solid objects can be changed- people who have made new materials Scientific enquiry: - classifying uses of materials - comparing uses of materials <ul style="list-style-type: none">• They use simple texts, with help to find information.• They make observations related to their task.• Independently use simple equipment provided.• Communicate their findings through drawings and simple charts. https://www.reachoutcpd.com/courses/ Practical: Protect Humpty Dumpty, Three Little Pigs. Best material for a shoe	<ul style="list-style-type: none">-	<ul style="list-style-type: none">- how seeds grow and bulbs grown into mature plants- how plants need water, light and temp to grow and stay healthy Scientific enquiry: - How do plants change over time? (from seed/bulb) - What do plants need to grow? (comparative test) - colourful carnations/celery <ul style="list-style-type: none">- Under direction, identify how their test is fair.- They say whether what happened was what they expected.- They describe their observations using scientific vocabulary and record them using simple tables when appropriate.- With help, pupils make their own suggestions about how to collect data to answer questions.- They make observations related to their task.- Independently use simple equipment provided.- Communicate their findings through drawings and simple charts.	
Vocabulary	Living, dead, never alive, habitat, micro-habitats, food chain, prey, predator, classifying, consumer Science vocabulary: observe, compare, identify (name), same, different	Offspring, survival, hygiene, nutrition, exercise, herbivores, carnivores, omnivores, fish, amphibians, reptiles, mammals, senses, pet, wild animal, calf, puppy, kitten	Materials, squashing, bending, twisting, stretching, suitability, properties, wood, paper, plastic, metal, glass, fabric, foil, elastic, hard/soft, rough/smooth. Flexible, waterproof, transparent/translucent, absorbent Science vocabulary: observe, compare, identify (name), same, different, fair test	<ul style="list-style-type: none">-	Healthy, germination, growth, survival, reproduction, comparative, evergreen, deciduous, flowers, vegetables, leaves, stem, petal, roots, seeds, bulb, habitat, water, light, temperature, soil Science vocabulary: observe, compare, identify (name), same, different, fair test	

Knowledge	<p>Key Facts: Name predator/prey/consumers MRS GREN Understand the difference between things that have been living, dead and never living. Understand what a habitat is. Understand how a food chain works</p>	<p>Key Facts MRS GREN</p> <p>Understand that young animals have different names from their parents e.g. dog, puppy Understand the basic needs of animals including humans Understand the importance of exercising and eating healthily</p>	<p>Identify features of different materials Compare materials and their properties Understand different stresses that can be applied to different materials</p>	-	<p>Key Facts</p> <p>Name parts of a plant (roots, leaves, flower, stem) Understand what a plant needs to be able to grow Recap MRS GREN</p>
BEECH	Animals including humans	Forces and magnets	Plants	Rocks	Light
FOCUS					
Objectives	<p>Scientific enquiry: (RO: Skull protection) https://www.reachoutcpd.com/courses/upper-primary/body-systems/practical-ideas/practical-idea-3/ They use simple texts to find information Make their own suggestions about how to collect data to answer questions. Can explain how a test can be fair/unfair. With help where appropriate, they make predictions. Choose from a range of simple equipment. Stop watches, measuring tapes They describe their observations using scientific vocabulary and record them using simple tables when appropriate.</p> <p>https://www.reachoutcpd.com/courses/upper-primary/food-and-feeding/</p> <p>(^ the useful link for this topic.)</p>	<p>Scientific enquiry: (RO: Making magnets) https://www.reachoutcpd.com/courses/upper-primary/forces-and-magnets/forces-and-magnets-practical-ideas/objectives/ Make their own suggestions about how to collect data to answer questions. Can explain how a test can be fair/unfair. With help where appropriate, they make predictions. They observe and compare objects, living things and events they observe. Choose from a range of simple equipment. They measure quantities such as length or mass. They describe their observations using scientific vocabulary and record them using simple tables when appropriate.</p> <p>https://www.reachoutcpd.com/courses/upper-primary/forces-and-magnets/</p>	<p>Scientific enquiry: (RO: Investigating seed dispersal) https://www.reachoutcpd.com/courses/upper-primary/plants-and-growth/plants-and-growth-4/practical-idea-2/ They use simple texts to find information Can explain how a test can be fair/unfair. With help where appropriate, they make predictions. They observe and compare objects, living things and events they observe. Choose from a range of simple equipment. They measure quantities such as length or mass. They describe their observations using scientific vocabulary and record them using simple tables when appropriate.</p> <p>Will be explored with sorting out flower arrangements for school.</p> <p>https://www.reachoutcpd.com/courses/upper-primary/plants-and-growth/ (Lower)</p> <p>https://www.reachoutcpd.com/courses/upper-primary/plants-and-growth/ (Upper)</p>	<p>Scientific enquiry: (RO: Fossil dig – making biscuits) https://www.reachoutcpd.com/courses/upper-primary/rocks-and-soils/rocks-and-soils-practical-ideas/practical-idea-2/ They use simple texts to find information Can explain how a test can be fair/unfair. With help where appropriate, they make predictions. They observe and compare objects, living things and events they observe. Choose from a range of simple equipment. They measure quantities such as length or mass. They describe their observations using scientific vocabulary and record them using simple tables when appropriate.</p>	<p>Scientific enquiry: (RO: Investigating shadows) https://www.reachoutcpd.com/courses/upper-primary/light/light-4/practical-idea-1/ Make their own suggestions about how to collect data to answer questions. Can explain how a test can be fair/unfair. With help where appropriate, they make predictions. They observe and compare objects, living things and events they observe. Choose from a range of simple equipment. They measure quantities such as length or mass. Make a sundial, and measure the shadow and position of it at different times in the day. Can they draw conclusions about the position of the sun? Japanese shadow puppets, making stain glass windows (transparent, translucent, opaque): link to Art. They describe their observations using scientific vocabulary and record those using simple tables when appropriate.</p> <p>https://www.reachoutcpd.com/courses/upper-primary/light/</p>

Vocabulary	<p>Topic: exercise, diet, healthy, nutrition, muscles, movement, cardiovascular, heart rate, skeleton, carbohydrates, dairy, protein, fruit and vegetables, sugars and fats</p> <p>Scientific vocabulary: fair test, stop watch, measurement</p>	<p>Accelerate, decelerate, friction, gravity, push, pull, magnet, north, south, resistance, aerodynamic, attract, repel, movement, surface, distance, bar magnet, magnet, ring magnet, horseshoe magnet</p> <p>Scientific vocabulary: fair test, stop watch, measurement</p>	<p>Roots, soil, plants, leaves, pollen, photosynthesis, nutrients, petals, pollination, Mrs Gren (movement, respiration, sense, growth, reproduction, excretion, nutrients)</p> <p>Scientific vocabulary: fair test, measurement, data, statistics</p>	<p>Metamorphic, igneous, sedimentary, durable, permeable, impermeable, volcanoes, granite, slate, marble, chalk</p> <p>Scientific vocabulary: fair test, practical enquiry, comparative test, conclusion</p>	<p>Light, shadows, transparency, translucent, opaque, mirror, reflective, darkness, light sources</p> <p>Scientific vocabulary: fair test, practical enquiry, comparative test, conclusion</p>	
Knowledge	<p><u>Key Facts</u> Fats and carbohydrates are pivotal for energy. We need fat to insulate our bodies and keep us warm. Consider the effects of different foods on our digestive systems and bowel movements. Sugars are in every food that we consume. Protein helps our muscles grow. Dairy vs non-dairy lifestyle: do a debate here to explore this including the health benefits and set backs of both. The positive effects of exercise and balancing with listening to your body...incorporate the importance of stretching.</p>	<p><u>Key Facts</u> Opposite poles attract and the same poles repel. The smoother the surface, the quicker the acceleration and the more frictionous the surface, the slow the acceleration. Metals are the most magnetic materials: can they explore which ones are the best, and at which distance? Equally, discover which materials are not magnetic.</p>	<p><u>Key Facts</u> MRS GREN: how to know if something is living. Like our own bodies, plants need water, sun and minerals to survive, which they can gain from soil. Leaves absorb the sun’s rays and photosynthesise it to make energy for themselves to enable them to grow. The roots effectively drink up the nutrients from the soil like a straw, which enables it to grow as well. Explore the different ways a seed can disperse: from animals consuming the plant, from wind blowing the seeds, https://thekidshouldseethis.com/post/exploding-plants-spread-their-seeds-with-high-pressure-bursts</p>	<p><u>Key Facts</u></p> <ul style="list-style-type: none">• <u>Igneous rocks</u> form when molten rock (magma or lava) cools and solidifies.• <u>Sedimentary rocks</u> originate when particles settle out of water or air, or by precipitation of minerals from water. They accumulate in layers.• <u>Metamorphic rocks</u> result when existing rocks are changed by heat, pressure, or reactive fluids, such as hot, mineral-laden water. <p>https://www.reachoutcpd.com/courses/upper-primary/rocks-and-soils/</p>	<p><u>Key Facts</u> Explore the difference between translucent, transparent and opaque. Shadows are created by blocking a light source. The position of the light source changes the length and position of the shadow. Opaque objects create the best shadows. Explore that there is a difference between something that is reflective and something is a light source.</p>	
ASH	Living things and their habitats (classification and food chains)		Teeth, Digestion		Electricity	
Focus						
Objectives	Scientific enquiry – Creating food chains and food webs Survey local environment - minibeasts They recognise why it is important to collect data to answer questions. https://www.reachoutcpd.com/courses/upper-primary/environments-and-habitats/		Scientific enquiry – Effect of drinks on teeth (using eggshell) High in iron https://www.reachoutcpd.com/courses/upper-primary/food-and-feeding/	Electricity: Scientific enquiry – Simple circuits debugging Testing different insulators and conductors https://www.reachoutcpd.com/courses/upper-primary/electricity/ Pupils respond and evaluate suggestions and putting forward their own ideas about how to find an answer to a question.	Scientific enquiry – Making string telephones Testing ear protectors Bottle chimes https://www.reachoutcpd.com/courses/upper-primary/sound/	States of Matter: Scientific enquiry – Making ice-cream Melting points https://www.reachoutcpd.com/courses/upper-primary/states-of-matter/ Pupils respond and evaluate suggestions and putting forward their own ideas about how to find an answer to a question. Can suggest ways to make a test fairer.

			<p>Can suggest ways to make a test fairer.</p> <p>Independently, where appropriate, they make predictions.</p> <p>Explain choices from a range of simple equipment.</p> <p>They measure quantities such as length or mass.</p> <p>They record their observations in a variety of ways and communicate findings using scientific language.</p> <p>They provide explanations for observations and for simple patterns in recorded measurements.</p> <p>They suggest improvements for their work.</p>		<p>Independently, where appropriate, they make predictions.</p> <p>Explain choices from a range of simple equipment.</p> <p>They measure quantities such as length or mass.</p> <p>They record their observations in a variety of ways and communicate findings using scientific language.</p> <p>They provide explanations for observations and for simple patterns in recorded measurements.</p> <p>They suggest improvements for their work.</p>
Vocabulary	<i>Vocab –classification, food chain, habitat, attributes, herbivore, carnivore, omnivore</i>	<i>Vocab –incisor, molar, pre-molar, canine, bacteria, digestion, intestine, pancreas, liver, gall bladder, stomach,</i>	<i>Vocab –cell (battery),bulb, switch, insulator, conductor, wires, buzzers, circuit, series,</i>	<i>Vocab – vibration, pitch, volume, wave, ear, middle ear, inner ear, earlobe, ear drum</i>	<i>Vocab – solid, liquid, gas, evaporation, condensation, cycle</i>
Knowledge	<p>Key Facts</p> <p>Fish, amphibians, mammals, birds, reptiles</p> <p>What herbivores and carnivores eat</p> <p>Producer</p> <p>consumer</p>	<p>Key Facts:</p> <p>Names of teeth in the human mouth and their job</p> <p>Age at which children loose teeth</p> <p>Construction of a tooth</p> <p>How to keep teeth healthy</p> <p>Sequence of the digestive system</p>		<p>Key Facts:</p> <p>Parts of the human ear</p> <p>How sound is made</p> <p>Sound waves</p>	<p>Key Facts:</p> <p>Matter can be affected by heat and cold</p> <p>Liquid – solid - gas</p>
Maple Focus	Forces	Earth and space	<p>Living things and their habitats</p> <p>Animals, including humans</p>	Properties and changes of materials	
Objectives	<p>Scientific enquiry</p> <p>Making a compass</p> <p>Exploring friction</p> <p>Running air resistance card</p> <p>They select information from sources provided for them.</p> <ul style="list-style-type: none"> - Pupils recognise that scientific ideas are based on evidence, and can make suggestions how things can be gathered. - In their own investigative work, they decide on an appropriate approach (for example using a fair test) to answer a question. - Where appropriate, they make predictions based on their scientific knowledge and understanding. - They select suitable equipment to use. - They make a series of measurements that are adequate for the task. - They record their observations, comparisons and measurements, using tables and bar charts. - They begin to plot points to form simple graphs. 	<p>Scientific enquiry</p> <p>How does light fall on a sphere?</p> <p>Phases of the moon</p> <p>Craters and impact</p> <p>Fruity solar system model</p> <p>They select from a range of sources of information.</p> <ul style="list-style-type: none"> - Pupils recognise that scientific ideas are based on evidence, and can make suggestions how things can be gathered. - Where appropriate, they make predictions based on their scientific knowledge and understanding. - They make a series of observations and measurements. 	<p>Scientific enquiry</p> <p>Getting old (sensory impairments)</p> <ul style="list-style-type: none"> - They select from a range of sources of information. - Pupils recognise that scientific ideas are based on evidence, and can make suggestions how things can be gathered. - Where appropriate, they make predictions based on their scientific knowledge and understanding. - They make a series of observations and measurements. - They make a series of measurements that are adequate for the task 	<p>Scientific enquiry</p> <p>Separating materials (filtering & salt retrieval)</p> <p>Dissolving</p> <ul style="list-style-type: none"> - They select from a range of sources of information. - Pupils recognise that scientific ideas are based on evidence, and can make suggestions how things can be gathered. - In their own investigative work, they decide on an appropriate approach (for example using a fair test) to answer a question. - Where appropriate, they make predictions based on their scientific knowledge and understanding. - They select suitable equipment to use. - They make a series of observations and measurements. - They make a series of measurements that are adequate for the task - They begin to plot points to form simple graphs. 	

	- They use these graphs to point out and interpret patterns in their data. - They suggest improvements in their work, giving reasons. They record their observations, comparisons and measurements, using tables and bar charts. https://www.reachoutcpd.com/courses/upper-primary/forces-and-magnets/		- They suggest improvements in their work, giving reasons. https://www.reachoutcpd.com/courses/upper-primary/earth-and-space/		- They record their observations, comparisons and measurements, using tables and bar charts. - They begin to plot points to form simple graphs. - They use these graphs to point out and interpret patterns in their data. - They suggest improvements in their work, giving reasons. https://www.reachoutcpd.com/courses/upper-primary/life-cycles/		- They record observations and measurements systematically and, where appropriate, present data as line graphs. - They use these graphs to point out and interpret patterns in their data. - They suggest improvements in their work, giving reasons. https://www.reachoutcpd.com/courses/upper-primary/changing-materials/	
Vocabulary	<i>Friction, Levers, Force, Newton, Pulley, Gears, Poles (North/south) Attract/repel, gravity, air resistance, water resistance, spring</i> <i>Scientific vocabulary: fair test, stop watch, measurement, variables, evidence</i>		<i>Celestial, Rotation, Orbit, Axis, solar system, planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus, Pluto, Moon Stars, satellite, constellations</i>		<i>Reproduction, Sexual/asexual reproduction (plants), Gestation, Adolescents, internal/ external reproduction, life cycle,</i>		<i>Properties, hardness, transparency, electrical conductivity, thermal conductivity, magnetism, soluble, dissolve, absorb, saturated, reversible, irreversible, solution, substance, separating, mixing, filtering, sieving</i> <i>Scientific vocabulary: variable/factor</i>	
Knowledge	Identify types of forces: gravity, friction, water resistance and air resistance. Learn about mechanisms such as levers, gears and pulleys and their related forces Understand the importance of Sir Isaac Newton, his work and life Understand how force is measured and the specific equipment used for this.		Movement of Earth and planets in relation to the sun Movement of moon Spherical bodies Day,night and seasons Constellations and study of the night sky Notable scientific individuals – Sir Tim Peake		Living things and their habitats Changes to old age Animals, including humans Life cycles of a mammal, an amphibian, an insect & a bird Reproduction- sexual and asexual in plants (3d flower) Gestation periods		Understanding and comparing the properties of materials, and grouping according to property. Investigating and identifying thermal conductors and insulators Investigating and identifying electrical conductors and insulators Understanding how to dissolve solids to form a solution and recover a solid from a solution. Identify methods to separate mixtures of materials using knowledge of their properties Investigating and explaining reversible and irreversible changes Understand how to form new materials e.g. by burning/cooking	
WILLOW Focus	Evolution and Inheritance https://www.reachoutcpd.com/courses/upper-primary/evolution-and-inheritance/		Animals including humans – healthy bodies https://www.reachoutcpd.com/courses/upper-primary/body-systems/		Light https://www.reachoutcpd.com/courses/upper-primary/light/		Electricity https://www.reachoutcpd.com/courses/upper-primary/electricity/ Puberty (Delivered by external??)	
Objectives	Scientific enquiries: Bird beak <i>Pupils describe how experimental evidence and creative thinking have been combined to provide a scientific explanation (for example Jenner's work on vaccination at KS2). They communicate their conclusions with appropriate scientific language. They draw conclusions that are consistent with the evidence and begin to relate these to scientific knowledge and understanding. When they try to answer a scientific question, they identify an appropriate approach.</i>		Scientific enquiries: pulse rate and exercise intensity; comparing foot size and hand span <i>Where appropriate, they describe, or show in the way they perform their task, how to vary one factor while keeping the others the same. Justify predictions based on their scientific knowledge and understanding. They select apparatus for a range of tasks and plan to use it effectively. They make a series of observations, comparisons or measurements with precision appropriate to the task. They begin to repeat observations and measurements and to offer simple explanations for any differences they encounter.</i>		Scientific enquiries: making a periscope <i>Where appropriate, they describe, or show in the way they perform their task, how to vary one factor while keeping the others the same. Justify predictions based on their scientific knowledge and understanding. They select apparatus for a range of tasks and plan to use it effectively. They make a series of observations, comparisons or measurements with precision appropriate to the task. They begin to repeat observations and measurements and to offer simple explanations for any differences they encounter. They communicate their conclusions with appropriate scientific language.</i>		Scientific enquiries: making a battery out of a lemon <i>Where appropriate, they describe, or show in the way they perform their task, how to vary one factor while keeping the others the same. Justify predictions based on their scientific knowledge and understanding. They select apparatus for a range of tasks and plan to use it effectively. They make a series of observations, comparisons or</i>	

			<p><i>They record their observations and measurements systematically and where appropriate, present data using as line graphs</i></p> <p><i>They communicate their conclusions with appropriate scientific language.</i></p> <p><i>They draw conclusions that are consistent with the evidence and begin to relate these to scientific knowledge and understanding.</i></p> <p><i>They make practical suggestions about how their working methods could be improved.</i></p>		<p><i>They record their observations and measurements systematically and where appropriate, present data as line graphs.</i></p> <p><i>They make practical suggestions about how their working methods could be improved.</i></p>	<p><i>measurements with precision appropriate to the task.</i></p> <p><i>They begin to repeat observations and measurements and to offer simple explanations for any differences they encounter.</i></p> <p><i>They communicate their conclusions with appropriate scientific language.</i></p> <p><i>They record their observations and measurements systematically and where appropriate, present data as line graphs.</i></p> <p><i>They make practical suggestions about how their working methods could be improved.</i></p>
Vocabulary	<p><i>Adaptation, DNA, evolution, fossil, habitat, inheritance, genes, natural selection, offspring, traits, variation</i></p>		<p><i>carbohydrates, cells, diet, fats, muscles, minerals, organs, proteins, pulse rate, nutrients, tissues, vitamins</i></p>		<p><i>absorb, direction, light source, opaque, periscope, reflective, scatter translucent, transparent</i></p>	<p><i>cell, circuit, component, conductor, electricity, insulator, parallel circuit, series circuit, switch</i></p>
Knowledge	<p>Animals and animals produce offspring that are similar but not identical because features are passed on (inheritance).</p> <p>There is variation between parents and their offspring.</p> <p>Adaptive traits – characteristics are influenced by the environment the living things live in.</p> <p>Fossils are the preserved remains or partial remains of ancient animals and plants.</p> <p>Evolution is the gradual process by which different kinds of living organism have developed from earlier forms over millions of years.</p>		<p>Humans have hearts with four chambers which pump oxygenated and deoxygenated blood around the body.</p> <p>Macronutrients: carbohydrates, proteins, fat, vitamins and minerals – sources and functions.</p> <p>Arteries carry blood away from the heart.</p> <p>Veins carry blood towards the heart.</p> <p>Drugs, alcohol and smoking have negative effects on the body.</p>		<p>We need light to be able to see things.</p> <p>Light travels in straight lines.</p> <p>Light travels as a wave – unlike waves or sound waves it does not need a medium to travel through.</p> <p>Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow.</p> <p>Shadows can be elongated or shortened depending on the angle of the light.</p>	<p>Components of a circuit and their symbols</p> <p>What will make a bulb brighter/dimmer or a buzzer louder/quieter?</p> <p>A series circuit has only one route for the current to take.</p>

The teaching staff of John Blow School, collaboratively collated this, and supporting documents.

This curriculum is underpinned by the best practice and research guidance from the work of Mary Myatt, Marc Hayes, Twinkl, Focus Education and Oak Academy.

Our intent is to breathe life into the philosophy of education of our school: it is purpose enacted.

Our intent is for our whole curriculum is:

Balanced: promoting intellectual, moral, spiritual, aesthetic, creative, emotional and physical development.

Rigorous: to develop intra-disciplinary habits of mind; integrating the subject's knowledge and skills into a coherent whole.

Coherent: to make explicit connections and links between the different subjects/experiences encountered.

Vertically integrated: It focuses on progression by sequencing knowledge; provides clarity about what getting better at the subject means.

Appropriate: by matching levels of challenge to a pupil's current level of maturity/knowledge.

Focused: The curriculum is manageable by teaching the most important knowledge; identifying big ideas or key concepts within a subject.

Relevant: we sought to connect the valued outcomes of a curriculum to the pupils being taught; providing opportunities for our pupils to make informed choices.