

EYFS Framework Personal, Social and Emotional Development ELG: Speaking Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. ELG: Managing Self 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 ELG: People, Culture and Communities Describe the immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps ELG: The Natural World 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

KS1 National Curriculum Strands					
KS1 Working Scientifically <ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions. 	Year 1				
	Biology		Chemistry	Physics	
	Animals, including Humans	Plants	Everyday materials	Seasonal Change	
	Year 2				
Biology		Chemistry			
Animals, including Humans	All living things and their habitats	Plants	Everyday materials		

Lower KS2 National Curriculum Strands					
Lower KS2 Working Scientifically <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings. 	Year 3				
	Biology		Chemistry	Physics	
	Animals, including Humans	Plants	Rocks	Forces	Light
	Year 4				
Biology		Chemistry	Physics		
Animals, including Humans	All Living things and their habitats	States of Matter	Electricity	Sound	

Upper KS2 National Curriculum Strands					
Upper KS2 Working Scientifically <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments. 	Year 5				
	Biology		Chemistry	Physics	
	Animals, including Humans	All Living things and their habitats	Properties and Changes in Materials	Forces	Earth in Space
	Year 6				
Biology		Physics			
Animals, including Humans: Circulatory System	All Living things and their habitats	Evolution and Inheritance	Electricity (Circuits)	Light	

Year 4 2019-21

Lower KS2 End Points:	Term	Autumn		Spring		Summer
	Half Term Coverage	Autumn 1 (Week 4 and 5)	Autumn 2 (Week 3 & 4)	Spring 1 (Week 3)	Spring 2 (Week 3)	Summer 1 (Week 6) Summer 2 (Week 1 & 2)
	Topic	Living things and their habitats	Electricity	Animals including humans	Sound	States of matter
<ul style="list-style-type: none"> Has broadened their scientific view of the world around them through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living and non-living things and familiar environments and by beginning to develop ideas about functions, relationships and interactions. Asks their own questions about what they observe and is able to make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. Draws simple conclusions and uses some scientific language, to both and write about what they have found out. Reads and spells scientific vocabulary correctly and with confidence, using their growing word and spelling knowledge. 	Key Knowledge	<ul style="list-style-type: none"> Knows that living things can be grouped in a variety of ways. Knows and can name living things in a range of habitats. Knows and can relate the key adaptational features of an organism to the known features of its habitat. Knows and can give examples of how an environment may change both naturally and due to human impact. 	<ul style="list-style-type: none"> Can identify and name appliances that require electricity to function Knows the basic parts of a circuit, including cells, wires, bulbs, switches and buzzers Knows that for an appliance to work within a circuit, it has to be part of a complete loop with a battery. Knows that a switch in a circuit is a temporary break in an otherwise 'complete circuit'. All metals conduct electricity but some, such as aluminium and titanium, are relatively poor conductors. Knows the recognised symbols used to represent components of a circuit and uses these to represent a circuit pictorially. 	<ul style="list-style-type: none"> Knows the basic parts of the digestive system in humans. Knows and can identify the different types of teeth in humans and their simple functions. Knows which organisms are producers, predators and prey and apply to the construction and interpretation of food chains. 	<ul style="list-style-type: none"> Knows how sounds are made, associating some of them with vibrating. Knows how sound travels from a source to our ears. Knows the correlation between pitch and the object. Knows the correlation between the volume of a sound and the strength of the vibrations that produced it. Know that sounds get fainter as the distance from the sound source increases. 	<p>Compromised Content:</p> <ul style="list-style-type: none"> Knows how to distinguish between a solid, liquid and gas. Knows that some materials change state when they are heated or cooled. Knows the temperatures at which ice, water and water vapour change state. Knows the part played by evaporation and condensation in the water cycle.
	Cross Curricular Links	Geography Y2 Autumn – Human impact on the environment	D&T: Incorporate a circuit into a 3D model (Y6 Motorised vehicle)	PE: Body systems	Music: Exploration of sounds made by musical instruments with different vibrating components	DT: Non-reversible change in the context of food preparation
	Key Skills	<ul style="list-style-type: none"> Observe plants and animals in different habitats throughout the year and use recordings to compare and contrast the living things observed. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Classify living things found in different habitats based on their features. Create a simple identification key based on observable features. Use research to explore human impact on the local environment e.g. litter, tree planting.* Use secondary sources to find out about how environments may naturally change.* Use secondary sources to find out about human impact, both positive and negative, on environments and write a report on this.* 	<ul style="list-style-type: none"> Construct and investigate a range of circuits. Investigate which materials can be used instead of wires to make a circuit. Classify materials that conduct electricity and those that don't following investigation and record findings.* Investigate the effect of a switch and combinations of switches in simple circuits. Investigate switches and consider variations for specific uses, such as a pressure switch for a burglar alarm. Apply their knowledge of conductors and insulators to design and make different types of switch. 	<ul style="list-style-type: none"> Construct and interpret a variety of food chains, identifying producers, predators and prey. Can create food chains based on research.* Identifies differences, and similarities of different types of teeth according to herbivore, omnivore and carnivore. Can record the teeth in their mouth (make a dental record). recreate the human stomach and observe representation of how food breaks down. Label the different parts of the digestive system. 	<ul style="list-style-type: none"> Experiment with at least three different instruments to observe and explore volume and pitch. Make predictions and draw conclusions about the pitch and volume of sounds.* Note how vibrations make sounds of different volumes and travel to our ears. Identify and show how sound travels through particles and into the ear. Make own instruments that produce a range of pitches. 	<p>Compromised Content:</p> <ul style="list-style-type: none"> Observe closely and classify a range of solids and liquids. Explore making gases visible Classify materials according to whether they are solids, liquids and gases. Observe a range of materials melting. Investigate how to melt ice more quickly. Observe the changes that are non-reversible relating (common ingredients). Investigate melting point of different materials. Explore freezing different liquids. Observe and measure temperature of icy water, tap water, hot water. Observe water evaporating and condensing. Set up investigations to explore changing the rate of evaporation.* Use secondary sources to find out about the water cycle.* Using their data, can explain what affects how quickly a solid melts. From their data, can explain how to speed up or slow down evaporation. Present learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet.
School Context						
	<ul style="list-style-type: none"> Use of school roof terrace and edible garden Visit Museum of London relating to 'Animals that Roamed London' Environmental Dangers Record Activity Sheet on local habitat 		<ul style="list-style-type: none"> Visit Museum of London relating to 'Animals that Roamed London' 	<ul style="list-style-type: none"> Use of equipment from the music room 	<ul style="list-style-type: none"> Use of equipment from school kitchen. 	

Year 5 2020-21					
Upper KS2 End Points:	Term	Autumn		Spring	Summer 1
	Half Term Coverage	Autumn 1 (Week 4-6)	Autumn 2 (Week 3 & 4)	Spring 2 (Week 1 and 2)	Summer 1 (Week 1 and 2)
	Topic	The Earth and Space	Materials: Changing State	Living things and their habitats	Forces
<ul style="list-style-type: none"> Has developed a deeper understanding of a wide range of scientific ideas through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. Has encountered more abstract ideas and is beginning to recognise how these help them to understand and predict how the world operates. Is beginning to recognise that scientific ideas change over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative fair tests and finding things out using a wide range of secondary sources of information. Is able to draw conclusions based on their data and observations, using evidence to justify their ideas and their scientific knowledge and understanding to explain their findings. 	Key Knowledge	<ul style="list-style-type: none"> The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (here it is day) and half is facing away from the Sun (night). As the Earth rotates the Sun appears to move across the sky. The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical. 	<p>Recovery Content:</p> <ul style="list-style-type: none"> Knows how to distinguish between a solid, liquid and gas, that some materials change state when they are heated or cooled. Knows the temperatures at which ice, water and water vapour change state and how this relates to the water cycle. Materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets. Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. Mixtures can be separated by filtering, sieving and evaporation. Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible. 	<p>Compromised Content:</p> <ul style="list-style-type: none"> Knows and can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Knows and can describe the life processes of reproduction in some plants (including the pollination process) and animals Knows that bulbs, tubers, runners and plantlets are examples of plant reproduction involving only one parent 	<ul style="list-style-type: none"> Knows that unsupported objects fall to Earth because of the force of gravity acting between the earth and the falling object Knows and can identify the effects of air resistance, water resistance and friction, that act between moving surfaces Knows that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
	Cross Curricular Links	<ul style="list-style-type: none"> History: historical misconceptions about the earth and scientists who challenged these. Geography: Time Zones 		<ul style="list-style-type: none"> write a leaflet containing information on different life cycles (literacy) write a report about a life cycle of a mammal (literacy) PSHE (SRE): Coverage of specific knowledge related to reproduction. 	<ul style="list-style-type: none"> D&T: Y4 (Levers), Y6 (Pulleys)
Upper KS2 Skills End Points (Working Scientifically):	Key Skills	<ul style="list-style-type: none"> Use secondary sources to help create a model e.g. role play or using balls, to show the movement of the Earth around the Sun and the Moon around the Earth. Use secondary sources to create a model to show why day and night occur Make first-hand observations of how shadows caused by the Sun change through the day Make a sundial and report on findings following observation of the changing place of the shadow, making conclusions as to what this demonstrates and how the sundial was used to indicate the time. Research time zones Consider the views of scientists in the past and how evidence was used to deduce the shapes and movements of the Earth, Moon and planets before space travel. 	<ul style="list-style-type: none"> Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties e.g. test waterproofness and thermal insulation to identify a suitable fabric for a coat Explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate Investigate rates of dissolving by carrying out comparative and fair test and records findings * * Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning Carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton) 	<p>Compromised Content:</p> <ul style="list-style-type: none"> Grow and observe plants that reproduce asexually e.g. strawberries, spider plant, potatoes organise mammals into different groups – sea and land and marsupials and use scientific evidence to refute/support correct/incorrect statements (such as ‘dolphins are fish’). Draw and label appropriate scientific diagrams following use of secondary sources and first hand observations relating to the life cycle of a range of animals. compare and contrast the life cycles of different living things and present findings identify which insects complete which type of metamorphosis and present findings identify the key differences between some amphibians – for example, toads and frogs, and present findings in different forms. Use data to compare and find patterns, for example to compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth/Look for patterns between the size of an animal and its expected life span) 	<ul style="list-style-type: none"> Investigate the pull on different objects using a newton meter and record forces in Newtons (N). Report on conclusions relating to an object’s mass and its weight in Newtons. Investigate the effect of friction in a range of contexts . Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water, pulling shapes e.g. boats along the surface of water. Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats. Explore how levers, pulleys and gears work. Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.

	School Context		
	<ul style="list-style-type: none"> LotC: Use playground to create role play of the solar system 		<ul style="list-style-type: none"> Edible playground
			<ul style="list-style-type: none"> Science museum trip (Include investigation of levers and pulleys)

Year 6 2021-22						
Upper KS2 End Points:	Term	Autumn		Spring	Summer	
	Half Term Coverage	Autumn 1 (Week 2 second half, 3 & 4)	Autumn 1 Week 7 Autumn 2 (Week 1 & 2)	Spring 1 (Week 3 & 4)	Spring 2 (Week 4 & 5)	Summer 1 (Week 1 & 2)
	Topic	Living things and their habitats	Animals including Humans: Circulatory System	Light	Evolution and Inheritance	Electricity (Circuits)
	Key Knowledge	<ul style="list-style-type: none"> Plants can be divided broadly into two main groups – flowering plants and non-flowering plants. Living things can be formally grouped according to characteristics. Animals can be divided into two main groups – vertebrates and invertebrates. Each group has common characteristics. 	<ul style="list-style-type: none"> Can 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 the body functions Knows and can describe the way in which nutrients and water are transported within animals, including humans 	<ul style="list-style-type: none"> Light appears to travel in straight lines Knows and can explain that objects are seen because they give out or reflect light into the eye Knows and can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Knows and can explain, with reference to how light travels, why shadows have the same shape as the objects that cast them 	<p>Recovery Content:</p> <ul style="list-style-type: none"> Children to be able to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird following topic introduction. Knows that bulbs, tubers, runners and plantlets are examples of plant reproduction involving only one parent. Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly some variations may not suit the new environment and will die. If it changes slowly, animals and plants with variations that are best suited survive and reproduce. Over a very long period of time these characteristics may be so different that a new species is created. This is evolution. Fossils give us evidence of what lived on the Earth millions of years ago scientists such as Darwin and Wallace observed how living things adapt to different environments 	<ul style="list-style-type: none"> that the brightness of a bulb, or the volume of a buzzer, correlates with the voltage of cells used in the circuit. Knows and can give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Knows the effect of adding more components to a circuit with one cell and the effect of adding multiple cells Knows and can use the recognised symbols to represent a simple circuit in a diagram.
Cross Curricular Links		<ul style="list-style-type: none"> Literacy: Report Writing Maths - Graphs and Data Collection PE - Physical Exercise PSHE - Healthy Eating D&T - Healthy Meals 			Spring Term DT Project incorporates mechanics alongside electronics.	

<p>Upper KS2 Skills End Points (Working Scientifically):</p> <ul style="list-style-type: none"> Plans different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Takes measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Records data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Reports and presents findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Uses test results to make predictions to set up further comparative and fair tests. Identifies scientific evidence that has been used to support or refute ideas or arguments. 	<p>Key Skills</p>	<ul style="list-style-type: none"> Classify plants and animals and record conclusions from the use of classification keys. Use information about the characteristics of an unknown animal or plant to assign it to a group. Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. Research an unfamiliar animal or plant using its characteristics to establish where it belongs in the classification system. 	<ul style="list-style-type: none"> Plan and conduct a scientific enquiry to identify different food groups. Use labelled diagrams to support understanding of how nutrients and oxygen are delivered around the body. Use information to identify the main components of the heart. Predict what will happen to the heart during exercise. Construct and analyse the variables that make a fair test. Conduct a fair investigation on the effects of exercise on the heart. Use scientific equipment to track results and record data using tables and graphs. ** Analyse whole class data after investigation to compare and reflect on findings and draw conclusions. Use information acquired to write a scientific report on how the human circulatory system works. 	<ul style="list-style-type: none"> Plan and conduct a test to investigate how light travels and explain/present the findings. Investigate the use of mirrors to reflect light and record using straight line diagrams to indicate the direction of light. Use mirrors, torches and protractors to demonstrate and record how light is reflected in a mirror and how we see ourselves in a mirror. Measure and record the angle of incidence and angle of reflection using a protractor and detailed diagram. 	<p>Recovery Content:</p> <ul style="list-style-type: none"> Grow and observe plants that reproduce asexually e.g. strawberries, spider plant, potatoes Follow lines of enquiry to support Explanation of the process of evolution. Demonstrate an understanding, with specific examples, of how an animal or plant has evolved over time e.g. penguin, peppered moth. Identify characteristics that will make a plant or animal suited or not suited to a particular habitat. Compare the ideas of Charles Darwin and Alfred Wallace on evolution. Research the work of Mary Anning and understand how this provided evidence of evolution. Referring to and using examples of fossil evidence that support the theory of evolution. 	<ul style="list-style-type: none"> Draw circuit diagrams of a range of simple series circuits, using recognised symbols. Communicate structures of circuits using circuit diagrams with recognised symbols make electric circuits and demonstrate, following investigation, how variation in the working of particular components can be changed. Plan and select resources for a fair scientific enquiry, deciding which variables to control. Record results from an experiment using tables and graphs Evaluate and explain their investigation, results and conclusions.
School Context						
<ul style="list-style-type: none"> Use observation of flowering plants in school grounds - Edible playground and roof garden. 						