



# Bradwell Village School



Powerful Knowledge Progression Science							
A Year Three child will come to Bradwell Village knowing:		Year Three	Year Four	Year Five	Year Six	A Year Six child will leave Bradwell Village knowing:	A KS3 child will learn:
<p>To explore and compare the differences between things that are living, dead or never been alive.</p> <p>To explore habitats and how they are suited to their environment.</p> <p>Identify, name and describe a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>To understand what plants need to grow and stay healthy.</p> <p>To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals, knowing if they are carnivores, herbivores and omnivores.</p>	<b>B I O L O G Y</b>	<p>An introduction to the relationship between the structure and function of the plant. ((Autumn)</p> <p>To know the importance of nutrition and be introduced to the main body parts associated with the skeleton and muscles. (Summer 2)</p>	<p>To use classification keys to group, identify and name a variety of living things and recognise that environments can change or pose dangers. (Spring 2)</p> <p>To know the simple functions of the basic parts of the digestive system in humans. (Spring 1)</p> <p>To identify the different types of teeth in humans and their simple functions. (Spring 1)</p> <p>To construct and interpret a variety of food chains, identifying producers, predators and prey. Spring 2)</p>	<p>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Autumn)</p> <p>To describe the life process of reproduction in some plants and animals. (Autumn)</p> <p>To describe the changes as humans develop to old age. (Autumn)</p>	<p>To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood (Summer)</p> <p>To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Summer)</p> <p>To describe the ways in which nutrients and water are transported within animals, including humans. (Summer)</p> <p>To 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. (Spring)</p> <p>To give reasons for classifying plants and animals based on specific characteristics. (Spring)</p>	<p>To have an understanding of living things, their environment and life cycle. (Spring)</p> <p>To group plants and animals based on their characteristic. (Spring)</p> <p>Identify parts of a plant.</p> <p>Identify characteristics of Living things ( Mrs Nerg) (Spring)</p>	<p>Cells and organisation.</p> <p>Photosynthesis and respiration.</p> <p>Reproduction.</p> <p>Inheritance and evolution.</p> <p>Heath and the human body.</p> <p>Eco systems and interdependence</p>

A Year Three child will come to Bradwell Village knowing:	Strand	Year Three	Year Four	Year Five	Year Six	A Year Six child will leave Bradwell Village knowing:	A KS3 child will learn:
<p>To understand animals and humans have offspring that grow into adults. To know the basic needs for survival. To describe the importance of exercise, hygiene and diet.</p> <p>To describe and compare the structure of a variety of common animals.</p> <p>To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<b>B i o l o g y</b>				<p>To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Autumn)</p> <p>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (Autumn)</p> <p>To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Autumn)</p>		
		<b>P o w e r f u l V o c a b u l a r y</b>	<p><b>Animals including humans</b> Movement, Muscles, Bones, Skull, Nutrition, Skeletons</p> <p><b>Plants</b> Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower</p>	<p><b>Animals including humans</b> Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar</p> <p><b>Living things and their habitats</b> Vertebrates, Reptiles, , Mammals, Invertebrates, Insects, Environment, Habitats producer, consumer, predator, prey</p>	<p><b>Animals including humans</b> Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty</p> <p><b>Living things and their habitats</b> Mammal, Reproduction, Insect, Amphibian, Bird, Offspring</p>		

A Year Three child will come to Bradwell Village knowing:	Strand	Year Three	Year Four	Year Five	Year Six	A Year Six child will leave Bradwell Village knowing:	A KS3 child will learn:
<p>To distinguish between an object and the material from which it is made.</p> <p>To identify, describe and group the properties a variety of everyday materials.</p> <p>To identify and compare the suitability of a variety of everyday materials.</p> <p>Find out how the shapes of solid objects can be changed.</p>	<b>C h e m i s t r y</b>	<p>To know how fossils are formed and classify them by their physical properties. (Summer 1)</p>	<p>To compare and group solids, liquids or gases. (Autumn 2)</p> <p>To observe that some materials can change state. (Autumn 2)</p> <p>To introduce evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Autumn 2)</p>	<p>To 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. (Autumn)</p> <p>To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. (Autumn)</p> <p>To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Autumn)</p> <p>To demonstrate and explain dissolving, mixing and changes of state are reversible and irreversible.</p>		<p>To separate materials based on their properties.</p> <p>To describe the properties of materials and why they are useful for products.</p> <p>To describe the differences between solids, liquids and gases.</p>	<p>States of matter and separating mixtures.</p> <p>Earth and atmosphere.</p> <p>Atoms and the periodic table.</p> <p>Acids and alkalis.</p> <p>Chemical reactions.</p> <p>Materials and recycling.</p>
	<b>P o w e r f u l V o c a b u l a r</b>	<p><b>Rocks</b> Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent</p>	<p><b>States of Matter</b> Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating</p>	<p><b>Properties and changes of materials</b> Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing</p>			

A Year Three child will come to Bradwell Village knowing:	Strand	Year Three	Year Four	Year Five	Year Six	A Year Six child will leave Bradwell Village knowing:	A KS3 child will learn:
To know why we have seasons and weather.	<b>P h y s i c s</b>	<p>To understand how we see, how light behaves and the importance of protecting our eyes. (Autumn 2)</p> <p>To compare how things move on different surfaces through forces. To understand magnetism. (Spring 2)</p>	<p>To identify how sounds are made. (Autumn 2)</p> <p>To recognise that vibrations from sounds travel through a medium to the ear. (Autumn 2)</p> <p>To recognise patterns between, pitch, volume and vibrations. (Autumn 2)</p> <p>To identify common appliances that run on electricity. (Summer 2)</p> <p>To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Summer 2)</p> <p>To identify whether or not a lamp will light in a simple series circuit will work or not using simple components. (Summer 2)</p> <p>To recognise some common conductors and insulators, and associate metals with being good conductors. (Summer 2)</p>	<p>To describe the movement of the Earth and other planets relative to the sun in the solar system (Spring)</p> <p>To describe the movement of the moon relative to the Earth. (Spring)</p> <p>To 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. (Spring)</p> <p>To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Spring)</p> <p>To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. (Spring)</p>	<p>To recognise that light appears to travel in straight lines. (Spring)</p> <p>To 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. (Spring)</p> <p>To 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. (Spring)</p> <p>To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. (Spring)</p> <p>To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (Summer)</p> <p>To 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. (Summer)</p> <p>To use recognised symbols when representing a simple circuit in a diagram. (Summer)</p>	<p>To set up a range of circuits and explain how electricity flows. Explain day, night and seasons. Explain the relationship between the Earth, Sun and Moon. To explain how light travels and shadows are formed. To identify a range of forces and how they act on objects.</p>	<p>Energy changes and transfers. Space. Forces Motions and pressure. Electricity and magnetism. Waves.</p>

	<b>Powerful Vocabulary</b>	<b>Light</b> Light, Shadows, Mirror, Reflective, Dark, Reflection  <b>Forces and magnets</b> Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull	<b>Sound</b> Volume, Vibration, Wave, Pitch, Tone, Speaker  <b>Electricity</b> Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators	<b>Earth and Space</b> Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation  <b>Forces</b> Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys	<b>Light</b> Refraction, Reflection, Light, Spectrum, Rainbow, Colour,  <b>Electricity</b> Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts, Cell	
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To ask simple questions and recognise that they can be answered in different ways observing closely. Use simple equipment and perform simple tests. Identify and classify using their observations and ideas. To suggest answers to questions gathering and recording data to help in	<b>Working Scientifically</b>	<b>Asking Questions</b> <ul style="list-style-type: none"> <li>ask relevant questions and use different types of scientific enquiries to answer them</li> <li>set up simple practical enquiries, comparative and fair tests</li> </ul> <b>Measuring and Recording</b> <ul style="list-style-type: none"> <li>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data logger</li> <li>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>gather, record, classify and present data in a variety of ways to help in answering questions</li> </ul> <b>Concluding</b> <ul style="list-style-type: none"> <li>identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>use straightforward scientific evidence to answer questions or to support their findings</li> </ul> <b>Evaluating</b> <ul style="list-style-type: none"> <li>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>		<b>Asking Questions</b> <ul style="list-style-type: none"> <li>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> </ul> <b>Measuring and Recording</b> <ul style="list-style-type: none"> <li>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul> <b>Concluding</b> <ul style="list-style-type: none"> <li>identify scientific evidence that has been used to support or refute ideas or arguments</li> <li>report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> </ul> <b>Evaluating</b> <ul style="list-style-type: none"> <li>use test results to make predictions to set up further comparative and fair tests</li> </ul>		Will know how to identify variables in an experiment. To be able to choose the correct instrument to take measurements. To choose a suitable way of recording data. To use results to make further predictions. To explain if a test has been carried out successfully. To be able to set up a fair test ensuring that only one variable is changed at a time. To make changes to a test if it is not being completed fairly. To compare results from different tests.	To pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility  To understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review.  To evaluate risks

answering questions	<b>Powerful Vocabulary</b>	Fair, systematic, enquiry, groups, prediction, conclusion, evaluate, measure.	Fair, systematic, enquiry, conclusion, evaluate, measure, precision, equipment, classification keys, accuracy, prediction		
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