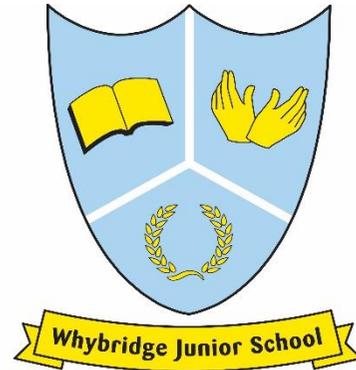


# Whybridge Junior School



## Science Curriculum Progression and Overview

## SCIENCE LONG TERM MAP

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
Year 3	<b>Animals Inc. humans (moving and feeding)</b> <ul style="list-style-type: none"> <li>Nutrition, linked to what we eat</li> <li>Skeletons and muscles</li> </ul> <b>Working Scientifically</b>	<b>Rocks (and soils)</b> <ul style="list-style-type: none"> <li>How rocks are formed</li> <li>Different kinds of rocks</li> <li>Fossils</li> </ul> <b>Working Scientifically</b>	<b>Forces (magnets and forces)</b> <ul style="list-style-type: none"> <li>How magnets attract some materials</li> <li>Floating and sinking</li> </ul> <b>Working Scientifically</b>	<b>Light (and shadows)</b> <ul style="list-style-type: none"> <li>Sources Inc. the Sun and electricity</li> <li>Shadows</li> <li>Reflection</li> <li>Vocab: e.g. translucent</li> </ul> <b>Working Scientifically</b>	<b>Plants (what plants need &amp; parts of plants)</b> <ul style="list-style-type: none"> <li>Function of different parts of a plant</li> <li>What different plants need to flourish?</li> <li>Journey of the food in a plant</li> <li>Life cycle of a plant</li> </ul> <b>Working Scientifically</b>	
Year 4	<b>Electricity</b> <ul style="list-style-type: none"> <li>Alternative sources of energy</li> </ul> <b>Working Scientifically</b>	<b>All living things and their habitats</b> <ul style="list-style-type: none"> <li>Identify and name a variety of living things (plants and animals) in the local and wider environment</li> <li>Recognise that environments can change and can pose dangers</li> </ul> <b>Working Scientifically</b>	<b>Animals including humans (human nutrition)</b> <ul style="list-style-type: none"> <li>The digestive system materials</li> <li>Teeth</li> </ul> <b>Working Scientifically</b>	<b>Sound</b> <ul style="list-style-type: none"> <li>Sources</li> <li>Vibration</li> <li>Loud and faint</li> <li>Pitch</li> <li>Volume</li> </ul> <b>Working Scientifically</b>	<b>States of matter (changes of state)</b> <ul style="list-style-type: none"> <li>Solids, liquids and gases</li> <li>Heating a cooling</li> <li>Evaporation and condensation</li> </ul> <b>Working Scientifically</b>	
Year 5	<b>Properties of, and changes in, materials</b> <ul style="list-style-type: none"> <li>Dissolving</li> <li>Evaporating</li> <li>Filtering</li> <li>Reversible and irreversible changes</li> <li>Properties of materials</li> </ul> <b>Working Scientifically</b>		<b>All living things (life cycles)</b> <ul style="list-style-type: none"> <li>Life cycle of plants and animals</li> <li>Birth, growth, development and reproduction</li> </ul> <b>Working Scientifically</b>	<b>Animals Inc. humans</b> <ul style="list-style-type: none"> <li>Changes as humans develop from birth to old age</li> </ul> <b>Working Scientifically</b>	<b>Forces</b> <ul style="list-style-type: none"> <li>Gravity</li> <li>Air resistance</li> <li>Water resistance</li> <li>Friction</li> <li>Gears, Pulleys, Leavers and Springs</li> </ul> <b>Working Scientifically</b>	<b>Earth, Space and Magnetism</b> <ul style="list-style-type: none"> <li>Earth relative to the Sun</li> <li>Moon relative to the Earth</li> <li>Relationship between the Sun, Earth and Moon</li> <li>Earth's rotation</li> <li>Day and Night</li> </ul> <b>Working Scientifically</b>
Year 6	<b>Animals incl. humans (our bodies)</b> <ul style="list-style-type: none"> <li>Circulatory system</li> <li>Heart, blood vessels</li> <li>Diet, exercise and drugs</li> <li>Transport of nutrients through the body</li> </ul> <b>Working Scientifically</b>	<b>Living things and their habitats (classifying living things)</b> <ul style="list-style-type: none"> <li>Classification of living things</li> <li>Vertebrates and invertebrates</li> <li>Classifying reptiles, amphibians, mammals, insects, etc.</li> </ul> <b>Working Scientifically</b>	<b>Evolution and Inheritance</b> <ul style="list-style-type: none"> <li>Fossils tell us about the past</li> <li>Off spring</li> <li>Changes to the human skeleton over time</li> <li>Darwin</li> </ul> <b>Working Scientifically</b>	<b>Electricity (changing circuits)</b> <ul style="list-style-type: none"> <li>Electrical circuits (series)</li> <li>Designing traffic lights</li> </ul> <b>Working Scientifically</b>	<b>Light (and sight)</b> <ul style="list-style-type: none"> <li>How light travels</li> <li>The eye</li> <li>Shadows</li> </ul> <b>Working Scientifically</b>	

## Science Progression

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
<b>Year 3</b>	<p><b>Animals Inc. humans</b></p> <ul style="list-style-type: none"> <li>identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</li> <li>identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>	<p><b>Rocks (and soils)</b></p> <ul style="list-style-type: none"> <li>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>recognise that soils are made from rocks and organic matter</li> </ul>	<p><b>Forces (magnets and forces)</b></p> <ul style="list-style-type: none"> <li>compare how things move on different surfaces</li> <li>notice that some forces contact between two objects, but magnetic forces can act at a distance</li> <li>observe how magnets attract or repel each other and attract some materials and not others</li> <li>compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</li> <li>know magnets have two poles</li> <li>predict whether two magnets will attract or repel each other, depending which poles are facing</li> </ul>	<p><b>Light (and shadows)</b></p> <ul style="list-style-type: none"> <li>recognise that they need light in order to see things and that dark is the absence of light</li> <li>notice that light is reflected from surfaces</li> <li>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>find patterns in the way that the size of shadows change</li> <li></li> </ul>	<p><b>Plants (what plants need, parts of plants and dispersal)</b></p> <ul style="list-style-type: none"> <li>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>investigate the way in which water is transported within plants</li> <li>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>	
<b>Year 4</b>	<p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>identify common appliances that run on electricity</li> <li>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>	<p><b>All living things and their habitats</b></p> <ul style="list-style-type: none"> <li>recognise that living things can be grouped in a variety of ways</li> <li>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li><i>recognise that environments can change and that this can sometimes pose dangers to living thing</i></li> <li>construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	<p><b>Animals including humans (human nutrition)</b></p> <ul style="list-style-type: none"> <li>describe the simple functions of the basic parts of the digestive system in humans</li> <li>identify the different types of teeth in humans and their simple functions</li> </ul>	<p><b>Sound</b></p> <ul style="list-style-type: none"> <li>identify how sounds are made, associating some of them with something vibrating</li> <li>recognise that vibrations from sounds travel through a medium to the ear</li> <li>find patterns between the pitch of a sound and features of the object that produced it</li> <li>find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>recognise that sounds get fainter as the distance from the sound source increases</li> </ul>	<p><b>States of matter (changes of state)</b></p> <ul style="list-style-type: none"> <li>compare and group materials together, according to whether they are solids, liquids or gases</li> <li>observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</li> <li>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>	

<p><b>Year 5</b></p>	<p><b>Properties of, and changes in, materials</b></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</li> </ul>		<p><b>All living things (life cycles)</b></p> <ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• describe the life process of reproduction in some plants and animals</li> </ul>	<p><b>Animals Inc. humans</b></p> <ul style="list-style-type: none"> <li>• describe the changes as humans develop to old age, learning about the changes experienced in puberty</li> <li>• research the gestation periods of other animals and compare them with humans</li> </ul>	<p><b>Forces</b></p> <ul style="list-style-type: none"> <li>• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</li> </ul>	<p><b>Earth, Space and Magnetism</b></p> <ul style="list-style-type: none"> <li>• describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>• describe the movement of the Moon relative to the Earth</li> <li>• describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>
<p><b>Year 6</b></p>	<p><b>Animals incl. humans (our bodies)</b></p> <ul style="list-style-type: none"> <li>• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>• describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>	<p><b>Living things and their habitats (classifying living things)</b></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• give reasons for classifying plants and animals based on specific characteristics</li> </ul>	<p><b>Evolution and Inheritance</b></p> <ul style="list-style-type: none"> <li>• recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> <li>• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> </ul>	<p><b>Electricity (changing circuits)</b></p> <ul style="list-style-type: none"> <li>• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• 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</li> <li>• use recognised symbols when representing a simple circuit in a diagram</li> </ul>	<p><b>Light (and sight)</b></p> <ul style="list-style-type: none"> <li>• recognise that light appears to travel in straight lines</li> <li>• 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</li> <li>• 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</li> <li>• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul>	

## Science Curriculum Overview (I can statements)

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2	
<b>Year 3</b>	<b>ANIMALS INCLUDING HUMANS</b> I can evaluate my existing knowledge of a topic. I can understand scientific vocabulary. I can understand the importance of having a healthy diet. I can understand the different food groups. I can evaluate my own diet. I can explain why it is important to have a healthy diet. I can identify the five different food groups. I can present my information in an efficient way. I can understand why humans and animals have skeletons. I can identify the main bones in the human body. I can identify that humans and some other animals have muscles for support, protection and movement. I can draw and label the bones of the human body. I can identify which bones provide protect. I can identify which bones support movement.	<b>ROCKS AND SOILS</b> I can understand key scientific vocabulary relating to rocks. I can assess my prior knowledge on rocks. I can create questions that I would like to investigate about rocks. I can identify types of rock. I can identify the properties of rocks. I can group rocks by their properties. I can explain how to test for density. I can explain how to test for durability. I can explain how to test for permeability. I can explain what a fossil is. I can explain the process of fossilisation. I can use scientific vocabulary.	<b>FORCES AND MAGNETS</b> I can understand scientific vocabulary. I can explain how the forces push and pull work. I can make predictions. I can record my results. I can explain that magnets produce a force. I can name some magnetic and non-magnetic materials. I can conduct a fair test. I can understand that different types of magnets have different strengths. I can record my findings in a bar chart. I can identify the poles of a magnet. I can identify whether magnetic objects will attract or repel each other.	<b>LIGHT</b> I can explain that light is the absence of dark I can explain that light travels in straight lines I can explain the difference between a source of light and a reflector of light I can explain how a shadow is formed when a light source is blocked I can conduct an experiment to investigate the size of shadows I can explain how to keep eyes protected from the rays of the sun	<b>PLANTS- WHAT PLANTS NEED, PARTS OF PLANT AND DISPERSAL</b> I can name and label the following parts of a plant- root, stem, trunk, leaf, flower I can identify the parts of a plant in more unusual plants, trees, mosses I can explain what plants need for life I can conduct a fair test to see what happens if you give a plant too much/too little of any of the following- air, light, water, nutrients from soil, room to grow I can explain how a plant living in a desert survives I can investigate if a plant can grow without soil I can explain how water is transported through a plant I can label the main parts of a flower and explain their purpose I can explain the process of pollination I can classify plants into wind and insect pollinated plants I can predict which method of pollination a plant might use by looking at it I can explain the process of seed formation I can explain the various methods of seed dispersal I can explain why it is beneficial for a seed to travel away from the parent plant I can explain why not all of the seeds that are dispersed will germinate I can draw a diagram to explain the life cycle of a flowering plant		
<b>Enquiry type</b>	Pattern seeking Identifying, classifying and grouping Comparative and fair testing	Pattern seeking identifying, classifying and grouping research using secondary sources	Pattern seeking Identifying, classifying and grouping Comparative and fair testing	Observation over time Pattern seeking Comparative and fair testing	Observation over time Pattern seeking Identifying, classifying and grouping Research using secondary sources Comparative and fair testing		

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2	
<b>Year 4</b>	<b>ELECTRICITY</b> I can understand that electricity is a form of energy I can explain some different ways to generate electricity I can identify appliances which need electricity I can understand which type of electricity is being used I can spot the dangers involved when using electricity I can name equipment needed to make a circuit I can write a set of instructions I can create a complete circuit I can add a switch to the circuit I can explain that a switch stops the flow of electric current I can add different materials to a complete circuit I can classify if a material is a conductor or an insulator I can explain that conductors allow electricity to flow through them I can construct simple circuits I can recognise a switch opens and closes a circuit I can make predictions and test my hypothesis	<b>LIVING THINGS AND THEIR HABITATS</b> I can identify different types of habitats and associated living things I can carry out an investigation I can make predictions based on my investigations I can generate criteria to sort living things. I can sort living things into a Venn or Carroll diagram. I can identify the 7 life process I can generate questions about animals. I can use questions to sort animals in a key. I can see similarities and differences between vertebrates I can identify how changes to the environment can affect living things. I can name some endangered species.	<b>ANIMALS INCLUDING HUMANS</b> I can name parts of the digestive system. I can identify parts of the digestive system. I can construct the digestive system. I can add functions to the parts of the digestive system. I can explain the functions of the digestive system. I can use scientific evidence to answer questions. I can understand that humans have different types of teeth. I can recognise that human teeth have different jobs. I can compare human and a variety of animal teeth. I can plan a fair test considering which variables to change I can make predictions I can give clear instructions explaining how to perform an investigation. I can order a simple food chain. I can understand the differences between producers, consumers, predators and prey. I can explore a variety of food chains. I can explain why the digestive system is important. I can explain the different types of teeth and their jobs. I can construct a simple food chain.	<b>SOUND</b> I can explain how sound travels I can explain how the volume and pitch of a sound can be changed I can measure the volume of a sound I can make visible vibrations using a variety of sources I can explain how the ear works I can investigate which materials are best at insulating against sound I can carry out a fair test to see how far sound travels	<b>STATES OF MATTER</b> I can explain the different parts of the water cycle I can explain how water changes state as it moves around the water cycle I can group materials based on whether they are solid, liquid or gas I can explain what happens when different materials are heated or cooled I can use a thermometer to find out the temperature that materials change state at- e.g. water boiling and freezing		
<b>Enquiry type</b>	<b>pattern seeking</b> <b>identifying, classifying and grouping</b> <b>comparative and fair testing</b>	<b>pattern seeking</b> <b>identifying, classifying and grouping</b> <b>comparative and fair testing</b> <b>research using secondary sources</b>	<b>Observation over time</b> <b>Comparative and fair testing</b> <b>Research using secondary sources</b>	<b>Pattern seeking</b> <b>Identifying, classifying and grouping</b> <b>Comparative and fair testing</b> <b>Research using secondary sources</b>	<b>pattern seeking</b> <b>identifying, classifying and grouping</b> <b>comparative and fair testing</b> <b>research using secondary sources</b>		

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
<b>Year 5</b>	<b>PROPERTIES AND CHANGES OF MATERIALS</b> I can identify the properties of a material I can give reasons why a material has been used for a particular object I can explain why I have grouped materials together. I can explain what happens when something dissolves. I can experiment to find which materials are soluble. I can create a fair test I can plan an investigation. I can suggest how mixtures can be separated. I can explain my reasoning. I can carry out an investigation as part of a team I can write a set of instructions I can use key scientific vocabulary I can carry out an investigation I can identify my variables I can record my findings I can create a table and record my findings I can conduct a fair test I can write a conclusion based on my findings I can present information in a graph I can identify irreversible chemical changes. I can explain irreversible chemical changes. I can describe the new materials created in irreversible chemical changes. I can recall what I have learned in Science I can organise my thoughts into categories or groups I can use scientific vocabulary		<b>LIVING THINGS AND THEIR HABITATS</b> I can explain the germination rates of different plants I can germinate a range of seeds and grow them into plants I can measure the growth as the plants grow I can label all the parts of a flower I can explain the reproductive cycle of a flowering plant I can explain the differences between wind and insect pollinated plants I can explain the life cycle of an amphibian, insect and bird I can explain how each life cycle is suited to the environment the animal lives in	<b>ANIMALS INCLUDING HUMANS</b> I can use scientific vocabulary to describe the reproduction of plants I can describe how some plants reproduce. I can describe how some plants reproduce. I can give the benefits of different types of reproduction. I can define what an insect is I can explain the difference between complete and incomplete metamorphosis I can identify the life cycle of birds I can identify the life cycle of mammals. I can identify the life cycle of amphibians I can use relevant scientific language	<b>FORCES</b> I can explain gravity and demonstrate how it works To explore the effect gravity has on objects and how gravity was discovered. To investigate the effects of air resistance To explore the effects of water resistance. I can explain how friction works I can plan, carry out and share results on experiments on friction I can make careful observations of a pendulum to explain the forces acting on it I can explain how pulleys help lift heavy objects	<b>EARTH AND SPACE</b> I can name the eight planets of the solar system and describe their position and movement relative to the Sun and neighbouring planets I can understand the relative sizes of each planet to the sun I can explain day and night using the Earth's rotation terminology I can explain why the seasons occur due to the Earth on its axis I can describe what a moon is. I can take measurements using a range of scientific equipment with increasing accuracy and precision I can describe the force of gravity, what causes it and how the force of gravity changes (e.g. if we were standing on a different planet). I can record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs and models. I can record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs and models I can raise different types of scientific questions, and hypotheses
<b>Enquiry type</b>	<b>Observation over time Comparative and fair testing Researching using secondary sources</b>		<b>Pattern seeking Identifying, classifying and grouping Comparative and fair testing Research using secondary sources</b>		<b>Observation over time Comparative and fair testing</b>	<b>Pattern seeking Observation over time Research using secondary sources</b>

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2	
Year 6	<p><b>ANIMALS INCLUDING HUMANS</b></p> <p>I can identify the parts of the circulatory system.</p> <p>I can name the parts of the circulatory system.</p> <p>I can describe the functions of parts of the heart and blood.</p> <p>I can explain the main functions of the heart, blood and blood vessels.</p> <p>I can explain how water and nutrients are transported within the body.</p> <p>I can state how the digestive system breaks down nutrients.</p> <p>I can explain the role of circulatory system in transporting nutrients and water in the body.</p> <p>I can explain how diet, drugs and exercise impact the human body.</p> <p>I can identify what a healthy lifestyle consists of.</p> <p>I can decide on the most appropriate type of investigation.</p> <p>I can explain which variables will be controlled.</p> <p>I can describe the parts of the body affected by drugs and alcohol.</p> <p>I can describe the parts of the body affected by smoking.</p>	<p><b>LIVING THINGS AND THEIR HABITATS</b></p> <p>I can sort and group animals based on their features.</p> <p>I can give reasons for the way I have classified animals.</p> <p>I can explain how living things are classified using the Linnaean system.</p> <p>I can describe who Carl Linnaeus was.</p> <p>I can classify living things using the Linnaean system.</p> <p>I can explain what is meant by 'characteristics'.</p> <p>I can match the types of animals to their characteristics.</p> <p>I can design a creature that has a set of characteristics of one type of animal.</p> <p>I can identify types of microorganism.</p> <p>I can describe helpful and harmful microorganisms.</p> <p>I can carry out an investigation on harmful microorganisms and I can explain why these microorganisms are harmful.</p> <p>I can describe the characteristics of different microorganisms.</p> <p>I can design a microorganism using given characteristics.</p> <p>I can draw conclusions from a set of results.</p>	<p><b>HUMAN EVOLUTION</b></p> <p>I can identify what an inherited characteristic is.</p> <p>I can explain the difference between inheritance and variation.</p> <p>I can show an understanding of how ideas about evolution developed over time.</p> <p>I can explain the terms adaptation, evolution and natural selection.</p> <p>I can identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>I can explain how a living thing has evolved over time.</p> <p>I can examine fossil evidence.</p> <p>I can report findings from enquires.</p> <p>I can explain the different stages of human evolution.</p> <p>I can explain the differences between living things that inhabited the Earth millions of years ago.</p> <p>I can identify adaptive traits in humans as a species.</p> <p>I can identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>I can describe the known stages of human evolution.</p> <p>I can compare modern humans with members of the same genus and family</p> <p>I can report findings from enquires.</p>	<p><b>ELECTRICITY</b></p> <p>I can explain how light behaves and travels in straight lines</p> <p>I can recognise the dangers of using lasers and how they can be used safely</p> <p>I can explain how light behaves and travels in straight lines</p> <p>I can work scientifically to construct a series circuit for a specific device or outcome and explain how it works</p> <p>I can describe the relationship between the number or voltage of a cell or cells and the effect it has on a bulb or buzzer for example</p> <p>I can work scientifically to construct a series circuit for a specific device or outcome and explain how it works</p> <p>I can work scientifically to construct a series circuit for a specific device or outcome and explain how it works</p>	<p><b>LIGHT</b></p> <p>I can identify light sources</p> <p>I can understand how mirrors reflect light, and how they can help us see objects.</p> <p>I can recognise that light appears to travel in straight lines</p> <p>I can explain how the eye receives light and how it perceives colours and shape</p> <p>I can investigate how light enables us to see colours</p> <p>I can investigate how a prism changes a ray of light.</p> <p>I can explain why shadows have the same shape as the object that casts them.</p> <p>I can investigate how refraction changes the direction in which light travels.</p> <p>I can explain the dangers of looking directly at a laser/bright light</p> <p>I can plan an experiment to see how to make a bulb brighter/dimmer</p> <p>I can explain how shadows are formed</p>		
Enquiry type	<p><b>Pattern seeking</b></p> <p><b>Researching using secondary sources</b></p> <p><b>Comparative and fair testing</b></p>	<p><b>Identifying, classifying and grouping</b></p> <p><b>Research using secondary sources</b></p>	<p><b>Pattern seeking</b></p> <p><b>Identifying, classifying and grouping</b></p> <p><b>Research using secondary sources</b></p>	<p><b>Observation over time</b></p> <p><b>Comparative and fair testing</b></p> <p><b>Research using secondary sources</b></p>	<p><b>Comparative and fair testing</b></p> <p><b>Research using secondary sources</b></p>		

During years 3,4,5 and 6, pupils will be taught to use the following practical scientific methods, processes and skills through the units of work within our science curriculum.

	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<b>Working scientifically</b>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>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</p> <p>using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>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.</p>	<p>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>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 a degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>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 a degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>identifying scientific evidence that has been used to support or refute ideas or arguments</p>

	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<b>Working scientifically</b>	<p>I can research using relevant questions and scientific enquiry.</p> <p>I can design and carry out a comparative and fair test.</p> <p>I can work systematically and make careful observations.</p> <p>I can measure accurately.</p> <p>I can classify and present data.</p> <p>I can record information using a range of methods, including drawings, labelled diagrams, keys, bar charts and tables.</p> <p>I can use equipment, including a thermometer and data logger.</p> <p>I can gather data.</p> <p>I can make predictions and conclusions</p> <p>I can explain similarities and differences and talk about changes.</p> <p>I can gather evidence.</p> <p>I can make improvements.</p> <p>I can construct an experiment and interpret results.</p> <p>I can make oral and written explanations.</p>	<p>I can research using relevant questions and scientific enquiry.</p> <p>I can design and carry out a comparative and fair test.</p> <p>I can work systematically and make careful observations.</p> <p>I can measure accurately.</p> <p>I can classify and present data.</p> <p>I can record information using a range of methods, including drawings, labelled diagrams, keys, bar charts and tables.</p> <p>I can use equipment, including a thermometer and data logger.</p> <p>I can gather data.</p> <p>I can make predictions and conclusions</p> <p>I can explain similarities and differences and talk about changes.</p> <p>I can gather evidence.</p> <p>I can make improvements.</p> <p>I can construct an experiment and interpret results.</p> <p>I can make oral and written explanations.</p>	<p>I can plan in a scientific way.</p> <p>I can work with precision and accuracy.</p> <p>I can repeat an investigation to check readings.</p> <p>I can display and present evidence and findings.</p> <p>I can record data using scientific diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs.</p> <p>I can make predictions.</p> <p>I can carry out further comparative and fair tests.</p> <p>I can report and present data while making reference to conclusions, causal relationships, explanations and degree of trust.</p> <p>I can present using oral and written forms.</p> <p>I can use evidence to support/refute ideas or arguments.</p> <p>I can identify, classify and describe.</p> <p>I can identify patterns.</p> <p>I can work in a systematic way.</p> <p>I can use quantitative measurements.</p>	<p>I can plan in a scientific way.</p> <p>I can work with precision and accuracy.</p> <p>I can repeat an investigation to check readings.</p> <p>I can display and present evidence and findings.</p> <p>I can record data using scientific diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs.</p> <p>I can make predictions.</p> <p>I can carry out further comparative and fair tests.</p> <p>I can report and present data while making reference to conclusions, causal relationships, explanations and degree of trust.</p> <p>I can present using oral and written forms.</p> <p>I can use evidence to support/refute ideas or arguments.</p> <p>I can identify, classify and describe.</p> <p>I can identify patterns.</p> <p>I can work in a systematic way.</p> <p>I can use quantitative measurements.</p>

KEY VOCABULARY

	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
	<p><b><u>Animals including humans</u></b> Nutrition, nutrients, carbohydrates, protein, fats, fibre, water, vitamins, minerals, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic skeleton, vertebrate, invertebrate, contract, relax, muscles, ball joint, socket joint, hinge joint, gliding joint</p> <p><b><u>Rocks</u></b> Appearance, physical properties, hard/soft, shiny/dull, rough/smooth, absorbent/not absorbent, fossils, sedimentary, igneous, metamorphic, permeable, particle, rock, soils, organic matter, buildings, gravestones, grains, crystal</p> <p><b><u>Forces</u></b> Force, push, pull, open, surface, magnet, magnetic, attract, repel, magnetic, poles, North, South</p> <p><b><u>Light</u></b> Direction, beam, source, transparent, translucent, torch, sundial, shadow, reflection, reflect, ray, periscope, mirror, Opaque, binoculars, magnifying</p> <p><b><u>Plants</u></b> root, stem, flower, seed, pollination, common, wild plants, garden plants, deciduous, evergreen, tree, trunk, branches, leaf, plant, bud, blossom, petals, fruit, vegetables, bulb</p>	<p><b><u>Electricity</u></b> Appliances, electricity, electrical circuit, cell, wire, bulb, buzzer, danger, electrical safety, sign, Insulators, wood, rubber, plastic, glass, conductors, metal, water, switch, open, close</p> <p><b><u>All living things and their habitats</u></b> Environment, flowering, non-flowering, plants, animals, vertebrate, environment dangers, Fish, amphibians, reptiles, birds, mammals, invertebrate, human impact positive - nature reserves, ecologically planned parks, garden ponds negative - population, development, litter, deforestation</p> <p><b><u>Animals including humans</u></b> human digestive system - digestion mouth, tongue - mixes, moistens saliva, oesophagus, transports stomach acid, enzymes, small intestine – absorbs, water, vitamins large intestine – compacts, colon, teeth incisors – cutting, slicing canines – ripping, tearing molars – chewing, grinding, floss, brush, food chain, sun, producers, prey, predators, carnivore, herbivore, omnivore</p> <p><b><u>Sound</u></b> Vibrate, vibration, vibrating, air, medium, ear, hear, sound, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate</p> <p><b><u>States of Matter</u></b> Solid, solidify, iron, ice, melt, freeze, liquid, evaporate, condense, gas, container, changing state, heated, heat, cooled, cool, degrees Celsius, thermometer, water cycle, evaporation, condensation, temperature, melting, warm/cool, water, water vapour</p>	<p><b><u>Properties of, and changes in, materials</u></b> Properties, hardness, solubility, transparency, electrical, conductor, thermal, dissolve, separate, solids, liquids, gases, evaporating, reversible, dissolving, mixing, Evaporation, filtering, sieving, melting, irreversible, burning, rusting, magnetism, electricity, chemists, quantitative, measurements, conductivity, insulation, chemical</p> <p><b><u>All living things (life cycles)</u></b> Cycle, gestation, larva/larvae, pupa/pupae, adolescent, fertilisation, reproduction, germination, chrysalis, photosynthesis, dispersal, mammal, amphibian, pollination</p> <p><b><u>Animals including humans</u></b> Puberty, life cycle, gestation, growth, reproduce, foetus, baby, fertilisation, toddler, child, teenager, adult, old age, life, expectancy, adolescence, adulthood, early adulthood, middle adulthood, late adulthood, childhood</p> <p><b><u>Forces</u></b> Gravity, air, resistance, water, friction, surface, force, effect, move, accelerate, decelerate, stop, direction, brake, mechanism, pulley, gear, spring</p> <p><b><u>Earth, Space and Magnetism</u></b> Gravity, earth, sun, moon, sphere, Revolve, rotate, planet, solar, orbit, Shadow, equator, month, astronaut, spherical, heliocentric, geocentric, hemisphere</p>	<p><b><u>Animals incl. humans (our bodies)</u></b> internal organs, heart, lungs, liver, kidney, brain, skeletal, skeleton, muscle, muscular, digest, digestion, digestive, circulatory system, heart, blood vessels, blood, impact, diet, exercise, drugs, lifestyle, nutrients, water, damage, drugs, alcohol, substances</p> <p><b><u>Living things and their habitats (classifying living things)</u></b> Classify, compare, classification, domain, kingdom, phylum, class order, family, genus, species, characteristics, vertebrates, invertebrates, microorganisms, organism, flowering, non-flowering</p> <p><b><u>Evolution and Inheritance</u></b> Variation, parent, fossils, identical, evolution, offspring, adaptation, non-identical, environment, inheritance, inherited traits, adaptive traits, natural selection, DNA, genes, fossilisation</p> <p><b><u>Electricity (changing circuits)</u></b> Voltage, brightness, volume, switches, danger, series, circuit, working safely, sign, circuit, diagram, switch, bulb, buzzer, motor, symbol</p> <p><b><u>Light (and sight)</u></b> Light, straight, reflect, reflection, light source, object, shadows, mirrors, periscope, rainbow, filters, light, beam, light source, reflect, reflection, opaque, transparent, translucent, mirror, travelling, periscope, concave, convex, shadow, angle of incidence, angle of reflection, dull, shiny, direction</p>