

Year 3

Year 3	Autumn Term 1: Light and Shadow		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have not previously studied light and sound. They are aware of different materials in their environments.</p> <p>Children have previously carried out simple structured science investigations to find simple answers to questions.</p>		<p>Children will continue to develop their physics knowledge. Understanding other concepts such as gravity and other forces.</p> <p>They will begin to more independently offer predictions based on previous knowledge and carry out investigations to find information.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can set up a simple practical enquiry and I am beginning to understand how to make a test fair. 	<ul style="list-style-type: none"> I am beginning to make systematic and careful observations. I sometimes use standard units. I gather data and using a pre-prepared table, I can record data. I record my findings using a drawing and/or words. 	<ul style="list-style-type: none"> <i>I can use my results when I talk about what happened and am starting to link to my science knowledge</i>
	Substantive Knowledge		Famous Scientists
	<p>Light</p> <ul style="list-style-type: none"> Know what dark is (the absence of light). Know that light is needed in order to see. Know that light is reflected from a surface. Know and demonstrate how a shadow is formed. Explore shadow size and explain the changes. Know the danger of direct sunlight and describe how to keep protected. 		
Vocabulary	Source of light observe shadow	Opaque Translucent Transparent Reflect	

Year 3	Spring Term 2: Skeletons and Muscles		
Sequence of Learning	Previous Learning		Next Steps in Learning
	Children in KS1 have learnt the names for main parts of the body. They have begun to carry out an investigation with support to find out new ideas.		The children will build on their learning in this unit to look the circulatory and respiratory system. They will start to ask their own scientific questions and carry these out making predictions and drawing conclusions using all their science knowledge so far.
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can set up a simple practical enquiry and I am beginning to understand how to make a test fair. I make suggestions about what observations and measurements to make and what equipment I need 	<ul style="list-style-type: none"> I am beginning to make systematic and careful observations. I sometimes use standard units 	<ul style="list-style-type: none"> I can use my results when I talk about what happened.
	Substantive Knowledge		Famous Scientists
<ul style="list-style-type: none"> Know about the skeletal system of a human. Know about the muscular system of a human. Know about the purpose of the skeleton in humans and animals. Know about the importance of a nutritious, balanced diet. 		Link to Greeks	
Vocabulary	Skeleton Muscles Contract Relax Protect Vertebrate Invertebrate		

Year 3	Spring Term 1: What is lava?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	How to identify everyday materials including rock and perhaps soil/compost (Year 1). How to identify and compare everyday materials including rock (Year 2). How to identify different habitats and growing plants (Year 2).		Children will continue to learn about materials and their properties including how materials can change state and how materials can be separated through sieving and filtering. Children will more independently plan and carry out investigations and present their results in different ways. They will evaluate their findings and use these to draw conclusions.
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can ask questions and I recognise that there are different types of enquiries. I can set up a simple practical enquiry and I am beginning to understand how to make a test fair. I make suggestions about what observations and measurements to make and what equipment I need 	<ul style="list-style-type: none"> I am beginning to make systematic and careful observations. I sometimes use standard units. With help, I can use information sources provided to find things out. I gather data and using a pre-prepared table, I can record data. I record my findings using a drawing and/or words. 	<ul style="list-style-type: none"> I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. I can use my results when I talk about what happened and am starting to link to my I am beginning to recognise if I have an unusual result and begin to offer suggestions as to why this was.
	Substantive Knowledge		Famous Scientists
Rocks <ul style="list-style-type: none"> Compare and group rocks based on their appearance and physical properties, giving a reason. Know about and explain the difference between sedimentary, metamorphic and igneous rock. Know how fossils are formed. Know how soil is made. 			
Vocabulary	Mineral: a natural substance that makes up rock. Rock: made from one or more minerals. Permeable: allows water to pass through. Impermeable: doesn't allow water to pass through. Crystals: minerals that join together to make igneous rock. Ore: rock or mineral that contains metals Igneous: rock formed from magma. Magma: hot liquid rock. Sediment: small bits of rock. Sedimentary: rock made from sediment. Names of some rocks, e.g. granite, marble, sand, clay, limestone. Humus: part of soil made from dead plants and animals – gives soil a dark colour		

Year 3	Term: How can forces help us?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	Magnets are not met in Key Stage 1 at all. However, the children may well have come across them and seen that they can attract some other materials.		Children will extend their knowledge of forces and learn about other non-contact forces such as gravity. They will extend their knowledge of properties of materials including those that are good insulators and conductors.
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can set up a simple practical enquiry and I am beginning to understand how to make a test fair. I make suggestions about what observations and measurements to make and what equipment I need 	<ul style="list-style-type: none"> I am beginning to make systematic and careful observations. With help, I can use information sources provided to find things out. I record my findings using a drawing and/or words. 	<ul style="list-style-type: none"> I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. I can use my results when I talk about what happened and am starting to link to my conclusions
	<ul style="list-style-type: none"> Substantive Knowledge 		<ul style="list-style-type: none"> Famous Scientists
<ul style="list-style-type: none"> Forces and magnets Know about and describe how objects move on different surfaces. Know how some forces require contact and some do not, giving examples. Know about and explain how objects attract and repel in relation to objects and other magnets. Predict whether objects will be magnetic and carry out an enquiry to test this out. Know how magnets work. Predict whether magnets will attract or repel and give a reason. 		<ul style="list-style-type: none"> The Englishman William Gilbert (1540-1603) was the first to investigate the phenomenon of magnetism systematically using scientific methods. He also discovered that the Earth is itself a weak magnet. 	
Vocabulary	Attract: pull towards. Repel: push away. Magnetic: attracted to a magnet. Non-magnetic: not attracted to a magnet. Iron: a metal that can be made into a magnet. Pole: the area of a magnet where the magnetic force is strongest. Magnetic North: the direction of the Earth's magnetic North pole.		Force: a push, pull, twist or turn caused when two objects interact with each other. Magnet: an object or device that attracts iron or another magnetic material. Contact: touching. Non-contact: not touching Prediction: what you think might happen in a scientific test. Fair Test

Year 3	Summer Term 2: Plants		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have previously looked at the main parts of a plant. They have grown plants and should know that plants need water to grow.</p> <p>Children have carried out simple scaffolded investigations and draw and said what they have found out.</p>		<p>As the children move through the school. They will learn about the parts of a flowering plant in more detail and understand how plants reproduce (Y5).</p> <p>They will begin to draw conclusions more independently and find ways of explaining their findings.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can ask questions and I recognise that there are different types of enquiries. I can set up a simple practical enquiry and I am beginning to understand how to make a test fair. I make suggestions about what observations and measurements to make and what equipment I need 	<ul style="list-style-type: none"> I am beginning to make systematic and careful observations. I sometimes use standard units. With help, I can use information sources provided to find things out. I gather data and using a pre-prepared table, I can record data. I record my findings using a drawing and/or words. 	<ul style="list-style-type: none"> I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. I can use my results when I talk about what happened and am starting to link to my scientific knowledge I am beginning to recognise if I have an unusual result and begin to offer suggestions as to why this was.
	Substantive Knowledge		Famous Scientists
<p>Plants</p> <ul style="list-style-type: none"> Know the function of different parts of flowering plants and trees. Know what different plants need to help them survive. Know how water is transported within plants. Know the plant life cycle, especially the importance of flowers. 			
Vocabulary	<p>Root: helps anchor the plant into the soil. Takes up water and nutrients.</p> <p>Stem: holds the plant upright and supports the leaves. Contains tubes that allow water to travel from the roots to the rest of the plant.</p> <p>Flower: the part of the plant where seeds are made.</p> <p>Leaves: catch sunlight and use this to make food.</p>	<p>Veins: tubes in the leaf that carry water and food.</p> <p>Germinate: when a seed starts to grow and produce a root and shoot.</p> <p>Seed dispersal</p>	<p>Pollen: dust-like powder made in the stamen of a flower.</p> <p>Pollination: moving the pollen from the stamen of one flower to the stigma of another.</p> <p>Petal: part of the flower which attracts insects – often brightly coloured.</p>

Year 4

Year 4	Autumn Term 1: What happens to our food when we eat it?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>The children have previously learnt names for parts of the body in KS1. In year 3 they have begun to make predictions and plan a scientific investigation to answer a question with support.</p>		<p>The children will move onto understanding the body in more detail including the heart and respiratory system, as well as the reproductive system. They will develop their understanding of making careful observations to answer questions and begin to apply this more independently.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can set up simple practical enquiries, comparative or fair tests. 	<ul style="list-style-type: none"> I use information sources provided to find things out. 	<ul style="list-style-type: none"> I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple graphs and keys. I can make conclusions and I make predictions for new values. I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and display.
	Substantive Knowledge		Famous Scientists
<p>Animals, including humans</p> <ul style="list-style-type: none"> Identify and name the parts of the human digestive system. Know the functions of the organs in the human digestive system. Know how nutrients, water and oxygen are transported within animals and humans. Identify and know the different types of teeth in humans. Know the functions of different human teeth. 			
Vocabulary	Digestive system Nutrients Organs Oxygen	Molar Canine Incisor Function	conclusions

Year 4	Spring Term 1: How do we hear music?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have previously made observations and used these to draw conclusions. In KS1 they will have identified how they hear sound and that sound gets quieter when it is further away.</p> <p>The children already know that some appliances need power and that electricity can be dangerous..</p>		<p>The children will move onto making increasing complex circuits in Year 6 and being able to record these using a broader range of circuit diagrams.</p> <p>They will move into looking at how light travels and making links between how light and sound travel together.</p> <p>Children move into planning increasing complex investigations and identifying variables, as well as choosing the most appropriate way of presenting results.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> <i>I ask relevant questions and use different types of scientific enquiries to answer them.</i> <i>I can set up simple practical enquiries, comparative or fair tests.</i> <i>I decide what observations and measurements to make and what equipment to use</i> 	<ul style="list-style-type: none"> <i>I use a range of equipment (including thermometers).</i> <i>I make systematic and careful observations and take accurate measurements using standard units.</i> <i>I use information sources provided to find things out.</i> <i>I record results in tables I have started to independently draw.</i> 	<ul style="list-style-type: none"> <i>I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys.</i> <i>I can make conclusions and I make predictions for new values.</i> <i>I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and display.</i>
	Substantive Knowledge		Famous Scientists
	<p>Sound</p> <ul style="list-style-type: none"> <i>Know how sound is made.</i> <i>Know how sound travels from a source to our ears.</i> <i>Know how sounds are made, associating some of them with vibrating.</i> <i>Know the correlation between pitch and the object producing a sound.</i> <i>Know the correlation between the volume of a sound and the strength of the vibrations that produced it.</i> <i>Know what happens to a sound as it travels away from its source.</i> <p>Electricity</p> <ul style="list-style-type: none"> <i>Identify and name appliances that require electricity to function.</i> <i>Construct a series circuit.</i> <i>Identify and name the components in a series circuit (including cells, wires, bulbs, switches, buzzers).</i> <i>Know how to draw a circuit diagram.</i> <i>Predict and test whether a lamp will light in a circuit.</i> <i>Know the function of a switch in a circuit.</i> <i>Know the difference between a conductor and an insulator, giving examples of each.</i> 		<p>Robert Boyle (1627- 1691)</p> <p>2. Ernst Mach (1838-1916). Described how shock waves are formed.</p> <p>3. Heinrich Hertz (1857-94). The unit of frequency used for all kinds of waves and vibrations is named after him. One Hertz is equal to one vibration per second.</p>
Vocabulary	Cell Bulb Series Circuit Components Wires Switch	Vibrate Circuit diagram	Voltage Buzzer Insulator Conductor Sound waves

Year 4	Term: Living things and Habitats														
Sequence of Learning	Previous Learning		Next Steps in Learning												
	Children build on their knowledge of plants and animals and begin to understand that living things can be classified. They have previously used careful observations to name parts of a flower and the skeleton and muscles.		The children will move onto looking further into living things and their habitats and understand the pollination and fertilisation of flowers more fully. The children will study seed dispersal and adaptations that plants and animals make to adapt to their environment.												
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions												
	<ul style="list-style-type: none"> I ask relevant questions and use different types of scientific enquiries to answer them. 	<ul style="list-style-type: none"> I make systematic and careful observations and take accurate measurements using standard units. I use information sources provided to find things out. 	<ul style="list-style-type: none"> I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. 												
	Substantive Knowledge		Famous Scientists												
Living things and their habitats <ul style="list-style-type: none"> Group living things in different ways. Use classification keys to group, identify and name living things. Create classification keys to group, identify and name living things (for others to use). Know how changes to an environment could endanger living things. Use food chains to identify producers, predators and prey. Construct food chains to identify producers, predators and prey. 		Recap on Carl Linneus - classification from Y3.													
Vocabulary	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Classify: to group things so that that they can be identified</td> <td style="width: 33%;">Habitat: a place where something lives.</td> <td style="width: 33%;">Mammal: an animal that gives birth to live young s</td> </tr> <tr> <td>Key: a series of questions that helps identify or group/classify things</td> <td>Food chain</td> <td>Predators</td> </tr> <tr> <td>Organism: a living thing, animal or plant</td> <td>Producer</td> <td>prey</td> </tr> <tr> <td></td> <td>consumer</td> <td></td> </tr> </table>			Classify: to group things so that that they can be identified	Habitat: a place where something lives.	Mammal: an animal that gives birth to live young s	Key: a series of questions that helps identify or group/classify things	Food chain	Predators	Organism: a living thing, animal or plant	Producer	prey		consumer	
Classify: to group things so that that they can be identified	Habitat: a place where something lives.	Mammal: an animal that gives birth to live young s													
Key: a series of questions that helps identify or group/classify things	Food chain	Predators													
Organism: a living thing, animal or plant	Producer	prey													
	consumer														

Year 4	Term: Is Ice Water?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have previously learned how to describe simple physical properties of everyday materials and how to compare and group together a variety of everyday materials. They had previously compared things carefully using simple observations.</p>		<p>Children will use their learning on states of matter and extend this to look at separating materials through evaporation. They will understand what happens when a solid such as sugar dissolves in a liquid. Children will extend their knowledge of changing state and understand reversible and irreversible changes. Children will be able to record observations more independently in different ways.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I ask relevant questions and use different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative or fair tests. I decide what observations and measurements to make and what equipment to use. 	<ul style="list-style-type: none"> I use a range of equipment (including thermometers). I make systematic and careful observations and take accurate measurements using standard units. I use information sources provided to find things out. I record results in tables I have started to independently draw. 	<ul style="list-style-type: none"> I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. I can make conclusions and I make predictions for new values. I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and display.
	Substantive Knowledge		Famous Scientists
<p>States of matter</p> <ul style="list-style-type: none"> Group materials based on their state of matter (solid, liquid, gas). Know how some materials can change state. Explore how materials change state. Measure the temperature at which materials change state. Know about the water cycle. Know the part played by evaporation and condensation in the water cycle. 			
Vocabulary	<p>Solid: a state of a material when it cannot change shape, but holds the shape of whatever container it was frozen in. Liquid: a state of a material when it can flow from one place to another, and can be poured. Gas: a state of a material when it fills the entire space available. Matter: another name for 'material': what an object is made of, not just fabric.</p> <p>Temperature: a measurement of how hot or cold something is Thermometer: a device or instrument used to measure temperature Melting: when a solid turns into a liquid Freezing: when a liquid turns into a solid Melting point: the temperature at which a solid melts Freezing point: the same temperature as a material's melting point. This is the temperature at which a liquid turns into a solid</p> <p>Evaporation: when a liquid turns into a gas, below its boiling point Boiling point: the temperature at which a liquid turns into a gas Condensing: the process by which a gas turns into a liquid Water cycle: how water moves around to create clouds, rain and the weather Boiling: when a material reaches a temperature when it bubbles and rapidly turns into a gas.</p>		

Year 5

Year 5	Autumn Term 1: Can Toast Ever become bread?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	Previously the children have learnt about solids, liquids and gases and freezing points and boiling points. They have observed reversible changes and made careful observations. Children have begun to take simple measurements and record these.		Children will move onto using their scientific knowledge to make predictions and to help them draw conclusions. They will understand how to carry out an investigation more independently and decide what to measure and what to change.
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question. I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations. 	<ul style="list-style-type: none"> use a range of equipment independently to make a series of observations and measurements I take are adequate for the task. I use information sources provided to find things out. I identify possible risks to myself and others with support. I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams that I can independently construct. 	<ul style="list-style-type: none"> I draw conclusions from my data and observations. I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion. I can use simple scientific models to present my thinking.
	Substantive Knowledge		Famous Scientists
<p>Properties and changes of materials</p> <ul style="list-style-type: none"> Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets). Know how a material dissolves to form a solution, explaining the process of dissolving. Know and show how to recover a substance from a solution. Know how some materials can be separated. Demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating). Know and can demonstrate that some changes are reversible, and some are not. Know how some changes result in the formation of a new material and this is usually irreversible. Know about reversible and irreversible changes. Give evidenced reasons why materials should be used for specific purposes. 		Ruth Bernerito	
Vocabulary	Rigid Flexible Thermal conductor: material that allows heat to pass through it. Thermal Insulator Solution: mixture of solid and liquid (you might not be able to see the solid).	Reversible/physical change: one that can be undone. Irreversible/chemical change: one that cannot be undone. Soluble: when something can dissolve. Insoluble: when something can't dissolve. Filter: use porous material to separate solid and liquid.	Dissolve: when a solid mixes with liquid to make a solution. Evaporate: heat liquid until it turns into gas. Mixture: two or more substances that can be separated.

Year 5	Spring Term 1: Does the Earth Move?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	Children have previously learnt about how things move. They know the sun is a source of light and that the moon reflects light. Children have previously made simple predictions and planned and carried out investigations with support, recording results and beginning to use science to draw conclusions.		As children move to KS3 they will learn about balanced forces and the movement changes depending of direction and size of force. They will learn about how weight = mass x gravitational field strength and how the Earth's tilt impacts on seasons.
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> • I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question. • I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations. 	<ul style="list-style-type: none"> • I use a range of equipment independently to make a series of observations and measurements I take are adequate for the task. • I use information sources provided to find things out. • I identify possible risks to myself and others with support. • I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams that I can independently construct. 	<ul style="list-style-type: none"> • I present the results (data and observations) in a range of formats e.g. bar and line graphs, simple scatter graphs, keys and frequency charts. • I draw conclusions from my data and observations. • I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion. • I can use simple scientific models to present my thinking.
	Substantive Knowledge		Famous Scientists
<p>Earth and space</p> <ul style="list-style-type: none"> • Know about and explain the movement of the Earth and other planets relative to the Sun. • Know about and explain the movement of the Moon relative to the Earth. • Know and demonstrate how night and day are created. • Describe the Sun, Earth and Moon (using the term spherical). <p>Forces</p> <ul style="list-style-type: none"> • Know what gravity is and its impact on our lives. • Identify and know the effect of air resistance. • Identify and know the effect of water resistance. • Identify and know the effect of friction 	Galileo Isaac Newton		
Vocabulary	Orbit Planet Spherical Solar system		Rotation Gravity Air resistance Water resistance friction

Year 5	Summer Term 1: How do things grow and replicate?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>The children have previously learnt about life cycles and have classified plants and animals. The children already know that the body and plants need nutrients to survive. Children have carried out investigations and asked questions and used observations to record answers in simple tables.</p>		<p>Children will make more detailed observations choosing their own equipment and recording and presenting this in increasingly complex ways. Children will begin to explain their conclusions using their observations and scientific knowledge and will become aware that results may have limited reliability and validity.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question. I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations. 	<ul style="list-style-type: none"> I use a range of equipment independently to make a series of observations and measurements I take are adequate for the task. I use information sources provided to find things out. I identify possible risks to myself and others with support. I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams that I can independently construct. 	<ul style="list-style-type: none"> I present the results (data and observations) in a range of formats e.g. bar and line graphs, simple scatter graphs, keys and frequency charts. I draw conclusions from my data and observations. I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion. I can use simple scientific models to present my thinking
	Substantive Knowledge		Famous Scientists
<ul style="list-style-type: none"> <i>Know the life cycle of different living things, e.g. mammal, amphibian, insect bird.</i> <i>Know the differences between different life cycles.</i> <i>Know the process of reproduction in plants.</i> <i>Know the process of reproduction in animals.</i> <p>Animals, including humans</p> <ul style="list-style-type: none"> <i>Create a timeline to indicate stages of growth in humans.</i> 			
Vocabulary	Reproduction Pollination Pollen egg		Seed dispersal Reliability

Year 6

Year 6	Autumn Term 1: Evolution and Inheritance		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>The children have previously learnt about different animals and ways to classify them. They have understood that animals have different life cycles. Children have followed simple keys to identify plants and animals.</p>		<p>At secondary school children will move on to learn the relationships in an ecosystem and the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops.</p> <p>The importance of plant reproduction through insect pollination in human food security and how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> <i>I ask relevant questions (containing scientific knowledge and understanding).</i> 	<ul style="list-style-type: none"> <i>I use relevant information sources to find things out.</i> 	<ul style="list-style-type: none"> <i>I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification key.</i> <i>I identify scientific evidence to support or refute the ideas or arguments for my conclusion.</i>
	Substantive Knowledge		Famous Scientists
	<p>Evolution and inheritance</p> <ul style="list-style-type: none"> <i>Know how the Earth and living things have changed over time.</i> <i>Know fossils can be used to find out about past</i> <i>Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents).</i> <i>Know how animals and plants are adapted to suit their environment.</i> <i>Link adaptation over time to evolution.</i> <i>Know about evolution and can explain what it is.</i> 		<p>Darwin</p>
Vocabulary	<p>Evolution Adaptation Fauna Inheritance</p>	<p>Characteristics Interdependence Flora species</p>	

Science

Year 6	Autumn Term 2: Victorians - Electricity		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>The children have previously looked at series circuits and used components to build a simple circuit.</p> <p>They have planned and carried out investigations and will now ask their own questions and investigate them.</p> <p>Children will draw an accurate circuit diagram.</p>		<p>The children will move on to look at different types of circuits such as parallel. They will expand their knowledge of components to include resistors.</p> <p>The will ask and investigate scientific questions with increasing independence.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I can plan different types of science enquiries to answer questions. I recognise and control variables where necessary. I decide what observations and measurements to make and what equipment to use (giving reasons) to make my measurements and observations. 	<ul style="list-style-type: none"> I identify possible risks to myself and others. I record data and results of increasing complexity using e.g. scientific diagrams and labels and tables. 	<ul style="list-style-type: none"> From my data and observations, I draw valid conclusions (i.e. consistent with the evidence) including causal relationships. I identify scientific evidence to support or refute the ideas or arguments for my conclusion.
	Substantive Knowledge		Famous Scientists
	<p>Electricity</p> <ul style="list-style-type: none"> Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer. Compare and give reasons for why components work and do not work in a circuit. Draw circuit diagrams using correct symbols. 		Thomas Edison
Vocabulary	Circuit diagram Voltage Cells Components Causal relationships	Variables Independent variable Dependent variable	

Year 6	Spring Term 1: Can a Bear live in a desert? - Living Things, habitats and light		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have previously looked at evolution and observing characteristics to classify animals into groups using keys.</p> <p>Children have previously looked at how shadows are formed and investigated how light moves and is reflected.</p>		<p>Children will move on to understand the groups and sub groups of classification. They will begin to understand the spectrum of light.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> <i>I ask relevant questions (containing scientific knowledge and understanding).</i> 	<ul style="list-style-type: none"> <i>I use relevant information sources to find things out.</i> 	<ul style="list-style-type: none"> <i>I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification key.</i> <i>From my data and observations, I draw valid conclusions (i.e. consistent with the evidence) including causal relationships.</i> <i>I identify scientific evidence to support or refute the ideas or arguments for my conclusion.</i>
	Substantive Knowledge		Famous Scientists
<p>Living things and their habitats</p> <ul style="list-style-type: none"> <i>Classify living things into broad groups according to observable characteristics and based on similarities and differences.</i> <i>Know how living things have been classified.</i> <i>Give reasons for classifying plants and animals in a specific way.</i> <p>Light</p> <ul style="list-style-type: none"> <i>Know how light travels.</i> <i>Know and demonstrate how we see objects.</i> <i>Know why shadows have the same shape as the object that casts them.</i> <i>Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.</i> 	Recap on Carl Linneus		
Vocabulary	Spectrum Eye Pupil Optic nerve Cornea	Pericope Concave Convex Magnify Kingdom	Classification key

Year 6	Term: Spring Term 2 and Summer Term 1 : Heart		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have studied the respiratory system of animals, they have begun to recognise the importance of a healthy diet.</p> <p>They have carried out a number of investigations and made detailed observations which they have started to record more independently. The children have begun to draw conclusions.</p>		<p>As children move to KS3, they learn more about the structure and details of the human digestive system.</p> <p>The understand more fully the impact of different parts of the diet on the body.</p> <p>In scientific enquiry children begin to follow their own lines of enquiry and begin to repeat measurements and use different forms of evidence to draw conclusions with scientific explanation.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> • I ask relevant questions (containing scientific knowledge and understanding). • I recognise which type of enquiry is best to answer a question. • I can plan different types of science enquiries to answer questions. • I recognise and control variables where necessary. • I decide what observations and measurements to make and what equipment to use (giving reasons) to make my measurements and observations. 	<ul style="list-style-type: none"> • I take measurements, using a range of scientific equipment with increasing accuracy and precision. • I take repeat readings when appropriate. • I use relevant information sources to find things out. • I identify possible risks to myself and others. • I record data and results of increasing complexity using e.g. scientific diagrams and labels and tables. • I choose a method to suit the results, e.g. a two-column table. 	<ul style="list-style-type: none"> • I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification key. • From my data and observations, I draw valid conclusions (i.e. consistent with the evidence) including causal relationships. • I identify scientific evidence to support or refute the ideas or arguments for my conclusion. • I can evaluate the validity of my results and make comments how to improve.
	Substantive Knowledge		Famous Scientists
<ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system. • Know the function of heart, blood vessels, blood. • Know the impact of diet, exercise, drugs and life style on health. • Know the ways in which nutrients and water are transported in animals, including humans. 		Orr – information on healthy diets.	
Vocabulary	<p>Heart: the organ that pumps blood around the body.</p> <p>Lungs: the organ that gathers in air as part of breathing.</p> <p>Blood: the liquid that transports oxygen around the body.</p> <p>Oxygen: the gas in the air that is needed for respiration.</p>		<p>Vein: a blood vessel carrying blood back to the heart.</p> <p>Artery: a blood vessel carrying blood away from the heart.</p> <p>Pulse</p> <p>Carbon Dioxide</p> <p>Ventricle</p>