



# Whole School Overview

## French

### Key Skills:

1. Cultural discovery of France and French-speaking countries, including ability to appreciate and discuss similarities and differences with home country
2. Listening skills, including ability to understand contexts and join in conversation
3. Speaking skills, starting with sounds familiarisation, and including pronunciation and intonation using familiar vocabulary, leading to phrases and basic language structure
4. Writing skills, including ability to read and write basic phrases and adapt them to create new sentences

# Reception

Learning Objectives	Key Skills	Notes
<b>Working Scientifically</b>		
<ul style="list-style-type: none"> <li>• To explore creatures, people, plants and objects in their natural environments.</li> <li>• To observe and manipulate objects and materials</li> <li>• To identify differences and similarities.</li> </ul> <p><b>Areas include:</b>            Knowledge and Understanding of the World            Mini beasts (insects)            Animals            Plants            Ourselves            Water Seasons and weather</p>	<p><b>Asking Questions</b></p> <ul style="list-style-type: none"> <li>• Show curiosity about objects, events and people.</li> <li>• Playing &amp; Exploring</li> <li>• Questions why things happen</li> </ul> <p><b>Planning and setting up different types of enquiries</b></p> <ul style="list-style-type: none"> <li>• Engage in open-ended activity.</li> <li>• Playing &amp; Exploring</li> <li>• Choose the resources they need for their chosen activities</li> </ul> <p><b>Performing tests and using equipment</b></p> <ul style="list-style-type: none"> <li>• Take a risk, engage in new experiences and learn by trial and error</li> <li>• Playing &amp; Exploring</li> <li>• Handle equipment and tools safely and effectively</li> </ul> <p><b>Observing and measuring</b></p> <ul style="list-style-type: none"> <li>• Make links and notice patterns in their experience</li> <li>• Creating &amp; Thinking Critically</li> </ul> <p><b>Identifying and classifying</b></p> <ul style="list-style-type: none"> <li>• Develop ideas of grouping, sequences, cause and effect</li> <li>• Creating &amp; Thinking Critically</li> </ul> <p><b>Gathering and recording data</b></p> <ul style="list-style-type: none"> <li>• Create simple representations of events, people and objects.</li> </ul> <p><b>Reporting, presenting and communicating data/findings</b></p> <ul style="list-style-type: none"> <li>• Make observations of animals and plants and explain why some things occur, and talk about changes</li> <li>• <b>ELG:</b> Speaking Builds up vocabulary that reflects the breadth of their experience</li> <li>• <b>Understanding:</b> Use their observations and ideas to suggest answers to questions</li> </ul>	

	<ul style="list-style-type: none"><li>• Talk about what they have found out and how they found it out</li></ul>	



# Year 1

Year 1 Learning Objectives	Key Skills	Notes
<b>Working Scientifically</b>		
<ul style="list-style-type: none"> <li>• To ask simple questions and recognising that they can be answered in different ways</li> <li>• To observe closely, using simple equipment</li> <li>• To perform simple tests</li> <li>• To identify and classify using their observations and ideas to suggest answers to questions</li> <li>• To gather and record data to help in answering questions.</li> </ul>	<p><b>Asking Questions</b></p> <ul style="list-style-type: none"> <li>• Asks questions raised by their own exploration of the world around them.</li> <li>• Draw on their everyday experiences to help answer questions.</li> <li>• Begin to use simple features to compare objects, materials and living things.</li> <li>• Ask people questions to find answers.</li> </ul> <p><b>Planning and setting up different types of enquiries</b></p> <ul style="list-style-type: none"> <li>• Experience different types of science enquiries, including practical activities</li> </ul> <p><b>Performing tests and using equipment</b></p> <ul style="list-style-type: none"> <li>• Begin to recognise different ways in which they might answer scientific questions</li> </ul> <p><b>Observing and measuring</b></p> <ul style="list-style-type: none"> <li>• Observe closely using simple equipment With help, observe changes over time</li> </ul> <p><b>Identifying and classifying</b></p> <ul style="list-style-type: none"> <li>• Use simple features to compare objects, materials and living things.</li> </ul> <p><b>Gathering and recording data</b></p> <ul style="list-style-type: none"> <li>• Ask people questions and use simple secondary sources to find answers</li> <li>• Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data</li> </ul> <p><b>Reporting, presenting and communicating data/findings</b></p> <ul style="list-style-type: none"> <li>• Use their observations and ideas to suggest answers to questions</li> </ul>	<p>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge at Key Stage 1.</p>

	<ul style="list-style-type: none"> <li>• Talk about what they have found out and how they found it out.</li> </ul>	
<p><b>Plants</b></p>		
<ul style="list-style-type: none"> <li>• To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>• To identify and describe the basic structure of a variety of common flowering plants.</li> <li>• including trees.</li> </ul>	<ul style="list-style-type: none"> <li>• Learn about what a plant is, then either go plant hunting, or plant seeds.</li> <li>• Identify the main parts of a variety of plants and describe their functions.</li> <li>• Either examine plants (and identify features) or draw and label plant diagrams.</li> <li>• Identify ways in which plants change over time. Either study and describe plants they have grown themselves, or identify ways in which plants around school have changed over time.</li> <li>• Identify and name trees, then learn some differences between deciduous and evergreen trees.</li> <li>• Sort trees into groups or go tree hunting.</li> <li>• Learn about a variety of common garden plants and identify some of their features, and consider why they are appealing to people, e.g. easy to grow, or attracts insects.</li> <li>• Learn how plants have similar life processes to animals and why plants may die.</li> <li>• Plant scraps and cuttings which re-grow, or identify dead and dying plants.</li> </ul> <p><b><u>Working Scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Use magnifying glasses,</li> <li>• Draw diagrams</li> <li>• Keep records</li> </ul>	<p><b>Challenge:</b> Pupils can name the parts of flowering plants.</p>
<p><b>Animals Including Humans</b></p>		

<ul style="list-style-type: none"> <li>• To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>• To identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>• To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets.</li> <li>• Compare animals using videos and photographs</li> <li>• Group animals according to what they eat.</li> <li>• Learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes.</li> <li>• Use their senses to compare different textures, sounds and smells.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Compare using videos and photographs.</li> <li>• Group animals according to what they eat.</li> <li>• Use their senses to compare different textures, sounds and smells.</li> </ul>	<p><b>Challenge:</b> Pupils can name some parts of the human body that cannot be seen.</p>
<p><b>Everyday Materials</b></p>		
<ul style="list-style-type: none"> <li>• To distinguish between an object and the material from which it is made</li> <li>• To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• To describe the simple physical properties of a variety of everyday materials</li> <li>• To compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore, name, discuss and raise and answer questions about everyday materials</li> <li>• Become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent</li> <li>• Explore and experiment with a wide variety of materials including for example: brick, paper, fabrics, elastic, and foil.</li> <li>• Sort materials based on their physical properties.</li> </ul> <p><b><u>Working scientifically:</u></b></p>	<p><b>Challenge:</b> Pupils can explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate. Or what happens when they are cooled, e.g. jelly.</p>

	<ul style="list-style-type: none"> <li>• Perform simple tests to explore questions, for example: 'What is the best material for an umbrella? ... for lining a dog basket? ... for curtains? ... for a bookshelf? ... for a gymnast's leotard?'</li> </ul>	
<b>Seasonal Changes</b>		
<ul style="list-style-type: none"> <li>• To observe changes across the four seasons</li> <li>• To observe and describe weather associated with the seasons and how day length varies.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the weather they can directly observe and other types of weather they know of.</li> <li>• Describe what the weather is normally like during different seasons, and what people might wear in different weather conditions</li> <li>• Study images, looking for clues as to which season it is – including weather conditions and plant growth.</li> <li>• Consider ways in which the changing conditions of the seasons affect the lives of animals.</li> <li>• Learn about how humans adapt their behaviour to survive during the changing seasons.</li> <li>• Explore in detail the ways in which clothing worn may change, or what food is available at different times of year.</li> <li>• Learn how the length of day and night, and the times at which they occur, change throughout the year.</li> <li>• Complete given pictograms using sets of data to show changes in weather, or frequency of different types of clothes worn, during each season.</li> <li>• Be aware that it is not safe to look directly at the sun, even when wearing dark sunglasses.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Make tables and charts about the weather</li> <li>• Make displays of what happens in the world around them, including day length, as the seasons change.</li> </ul>	<p><b>Challenge:</b> Pupils can talk about weather variation in different parts of the world.</p>



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## Year 2

<b>Topics covered:</b>	Greetings Numbers to 31 Colours French Christmas Traditions Weeks/Months of the Year Age/Birthdays	The Date French Easter Traditions Animals Family French Alphabet Playground Games	
<b>Learning Objectives</b>	<b>Key Skills</b>		<b>Notes</b>
<b>Cultural discovery of France and French-speaking countries, including ability to appreciate and discuss similarities and differences with home country</b>			
<ul style="list-style-type: none"> <li>• To share prior knowledge of France</li> <li>• To explore basic key facts about France</li> <li>• To locate France on a map</li> <li>• To discover French traditions</li> <li>• To start exploring the daily life of French children and their families</li> </ul>	<ul style="list-style-type: none"> <li>• Share personal stories that are related to France</li> <li>• Develop personal knowledge by listening to others' stories as well as teacher's stories</li> <li>• Develop personal knowledge by watching French videos and listening to French stories</li> <li>• Begin to notice cultural similarities and differences between countries</li> </ul>	Videos/Pictures of French landmarks, food... that children may know. Videos and Stories about Christmas and Easter.	
<b>Listening skills, including ability to understand contexts and join in conversation</b>			
<ul style="list-style-type: none"> <li>• To listen attentively to the spoken language</li> <li>• To explore the basic patterns and sounds of the spoken language</li> <li>• To show understanding of the spoken language</li> <li>• To understand that same words can be pronounced differently in French</li> </ul>	<ul style="list-style-type: none"> <li>• Recognise basic sounds</li> <li>• Recognise simple words</li> <li>• Be introduced to and recognise basic sentences and familiar sentences</li> <li>• Make connections between what is heard and seen with known English words and sentences, intrinsically translating</li> <li>• Recognise their French names and that of others</li> <li>• Understand and respond to basic conversation starters</li> <li>• Engage in simple listening games and activities</li> </ul>	French names given to all children. Early introduction to unusual key French sounds such as H being a silent letter.	
<b>Speaking skills, starting with sounds familiarisation, and including pronunciation and intonation using familiar vocabulary, leading to phrases and basic language structure</b>			

<ul style="list-style-type: none"> <li>• To familiarise with new sounds and patterns leading to basic sound reproduction</li> <li>• To familiarise with new words and sentences leading to basic words and sentences reproduction</li> <li>• To begin to ask and answer short learnt sentences within context</li> <li>• To begin to build up confidence to speak</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to pronounce basic vocabulary using accurate intonation and sounds reproduction</li> <li>• Begin to reproduce short learnt sentences within context</li> <li>• Begin to respond to simple vocabulary and commands</li> <li>• Engage in simple speaking games and activities</li> <li>• Use the local environment to observe how plants grow.</li> <li>• Understand the requirements of plants for germination, growth and survival and the processes of reproduction and growth in plants.</li> <li>• Know that seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Observe and record, with some accuracy, the growth of a variety of plants as they change over</li> <li>• Observe similar plants at different stages of growth; Set up a comparative test to show that plants need light and water to stay healthy.</li> </ul>	
<p><b>Writing skills, including ability to read and write basic phrases and adapt them to create new sentences</b></p>		
<ul style="list-style-type: none"> <li>• To notice that animals, including humans, have offspring which grow into adults</li> <li>• To find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans</li> <li>• Be introduced to the processes of reproduction and growth in animals</li> <li>• Answer questions that help to recognise growth; they should not be expected to understand how reproduction occurs.- e.g. egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, and adult.</li> </ul> <p><b><u>Working scientifically:</u></b> Observe through video or first-hand how different animals, including humans, grow</p>	<p><b>Challenge:</b> Pupils can explain that animals reproduce in different ways</p>

	<p>Ask questions about what things animals need for survival and what humans need to stay healthy. Suggest ways to find answers to their questions</p>	
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## Year 4

Learning Objectives	Key Skills	Notes
<p><b>Cultural discovery of France and French-speaking countries, including ability to appreciate and discuss similarities and differences with home country</b></p>		
<ul style="list-style-type: none"> <li>• To ask relevant questions and use different types of scientific enquiries to answer them</li> <li>• To set up simple practical enquiries, comparative and fair tests</li> <li>• To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>• To gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>• To record findings using simple scientific language, draw labelled diagrams, keys, bar charts, and tables</li> <li>• To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>• To identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>• To use straightforward scientific evidence to answer questions or to support their findings.</li> </ul>	<p><b>Asking Questions</b></p> <ul style="list-style-type: none"> <li>• Asks questions raised by their own exploration of the world around them.</li> <li>• Draw on their everyday experiences to help answer questions.</li> <li>• Ask people questions to find answers.</li> </ul> <p><b>Planning and setting up different types of enquiries</b></p> <ul style="list-style-type: none"> <li>• Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions</li> </ul> <p><b>Performing tests and using equipment</b></p> <ul style="list-style-type: none"> <li>• Recognise when a simple fair test is necessary and help to decide how to set it up</li> </ul> <p><b>Observing and measuring</b></p> <ul style="list-style-type: none"> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them</li> </ul> <p><b>Identifying and classifying</b></p> <ul style="list-style-type: none"> <li>• Talk about criteria for grouping, sorting and classifying; and use keys</li> </ul> <p><b>Gathering and recording data</b></p> <ul style="list-style-type: none"> <li>• Collect and record data from their own observations and measurements in a variety of ways: bar charts and tables, standard units, labelled diagrams, keys and help to make decisions about how to analyse this data</li> </ul> <p><b>Reporting, presenting and communicating data/findings</b></p>	<p>Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.</p>

	<ul style="list-style-type: none"> <li>• Make predictions for new values within or beyond the data they have collected and find ways of improving what they have already done</li> </ul>	
<b>Listening skills, including ability to understand contexts and join in conversation</b>		
<ul style="list-style-type: none"> <li>• To recall patterns of sounds learned in the previous year</li> <li>• To extend recognition of new patterns and sounds</li> <li>•</li> <li>•</li> <li>• To recognise that living things can be grouped in a variety of ways.</li> <li>• To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> <li>• To recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul>	<ul style="list-style-type: none"> <li>• Use the local environment to raise and answer questions that help to identify and study plants and animals in their habitat.</li> <li>• Identify how the habitat changes throughout the year.</li> <li>• Explore possible ways of grouping a wide selection of living things that include animals, flowering plants and non-flowering plants.</li> <li>• Begin to put vertebrate animals into groups, e.g.: fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. Understand that plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, e.g. ferns and mosses.</li> <li>• Explore examples of human impact (both positive and negative) on environments, e.g., the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.</li> </ul> <p><b><u>Working Scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Use and make simple guides or keys to explore and identify local plants and animals.</li> <li>• Make a guide to local living things.</li> <li>• Raise and answer questions based on observations of animals and what they have found out about other animals that they have researched.</li> </ul>	<p><b>Challenge:</b> To research the work of pioneers in classification e.g. Carl Linnaeus.</p>
<b>Animals Including Humans</b>		

<ul style="list-style-type: none"> <li>• To describe the simple functions of the basic parts of the digestive system in humans.</li> <li>• To identify the different types of teeth in humans and their simple functions.</li> <li>• To construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to know the main body parts associated with the digestive system, e.g.: mouth, tongue, teeth, oesophagus, stomach, and small and large intestine.</li> <li>• Explore questions that help them to understand the special functions of these body parts.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Compare the teeth of carnivores and herbivores and suggest reasons for differences.</li> <li>• Research what damages teeth and how to look after them.</li> <li>• Draw and discuss their ideas about the digestive system and compare them with models or images.</li> </ul>	<p><b>Challenge:</b> Pupils can explain how certain living things depend on one another to survive.</p>
<p><b>States of Matter</b></p>		
<ul style="list-style-type: none"> <li>• To compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>• To 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>• To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container).</li> <li>• Observe water as a solid, a liquid and a gas and note the changes to water when it is heated or cooled.</li> <li>• Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Group and classify a variety of different materials.</li> <li>• Explore the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party).</li> <li>• Observe and record evaporation over a period of time e.g., a puddle in the playground or washing on a line.</li> </ul>	<p><b>Challenge:</b> To research the temperature at which materials change state e.g., when iron melts or when oxygen condenses into a liquid</p>



	<ul style="list-style-type: none"> <li>Investigate the effect of temperature on washing drying or snowmen melting</li> </ul>	
<b>Sound</b>		
<ul style="list-style-type: none"> <li>To identify how sounds are made, associating some of them with something vibrating.</li> <li>To recognise that vibrations from sounds travel through a medium to the ear.</li> <li>To find patterns between the pitch of a sound and features of the object that produced it.</li> <li>To find patterns between the volume of a sound and the strength of the vibrations that produced it.</li> <li>To recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and identify the way sound is made through vibration in a range of different musical instruments from around the world.</li> <li>Find out how the pitch and volume of sounds can be changed in a variety of ways.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>Find patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses.</li> <li>Make earmuffs from a variety of different materials to investigate which provides the best insulation against sound.</li> <li>Make and play their own instruments by using what they have found out about pitch and volume..</li> </ul>	<p><b>Challenge:</b> Pupils can work out which materials give the best insulation for sound and explain why.</p>
<b>Electricity</b>		
<ul style="list-style-type: none"> <li>To identify common appliances that run on electricity</li> <li>To construct a simple series electrical circuit.</li> <li>To identify and name the basic parts of a circuit, including cells, wires, bulbs, switches and buzzers.</li> <li>To 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>To 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> </ul>	<ul style="list-style-type: none"> <li>Construct simple series circuits,</li> <li>Use different components, for example, bulbs, buzzers and motors, and including switches.</li> <li>Use their circuits to create simple devices.</li> <li>Draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage (these will be introduced in year 6).</li> <li>Children might use the terms current and voltage, but these should not be introduced or defined formally at this stage.</li> </ul>	<p><b>Challenge:</b> Pupils can work out which metals can be used to connect across a gap in a circuit.</p>

<ul style="list-style-type: none"><li>• To recognise some common conductors and insulators, and associate metals with being good conductors</li></ul>	<ul style="list-style-type: none"><li>• Children should be taught about precautions for working safely with electricity.</li></ul> <p><b><u>Work scientifically:</u></b></p> <ul style="list-style-type: none"><li>• Observe patterns e.g. that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</li></ul>	
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**Year 5**

Learning Objectives	Key Skills	Notes
<b>Working Scientifically</b>		
<ul style="list-style-type: none"> <li>• To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>• To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>• To use test results to make predictions to set up further comparative and fair tests.</li> <li>• To 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> <li>• To identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>	<p><b>Asking Questions</b></p> <ul style="list-style-type: none"> <li>• Asks questions raised by their own exploration of the world around them.</li> <li>• Use their science experiences to explore ideas and raise different kinds of questions.</li> </ul> <p><b>Planning and setting up different types of enquiries</b></p> <ul style="list-style-type: none"> <li>• Talk about how scientific ideas have developed over time Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions</li> </ul> <p><b>Performing tests and using equipment</b></p> <ul style="list-style-type: none"> <li>• Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> </ul> <p><b>Observing and measuring</b></p> <ul style="list-style-type: none"> <li>• Make their own decisions about what observations to make, what measurements to use and how long to make them for.</li> </ul> <p><b>Identifying and classifying</b></p> <ul style="list-style-type: none"> <li>• Use and develop keys and other information records to identify, classify and describe living things and materials,</li> </ul> <p><b>Gathering and recording data</b></p> <ul style="list-style-type: none"> <li>• Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</li> </ul> <p><b>Reporting, presenting and communicating data/findings</b></p> <ul style="list-style-type: none"> <li>• Identify scientific evidence that has been used to support or refute ideas or arguments Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas,</li> </ul>	<p>Pupils should read, spell and pronounce scientific vocabulary correctly.</p>
<b>Living Things And Their Habitats</b>		

<ul style="list-style-type: none"> <li>• To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• To describe the life process of reproduction in some plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>• Study and raise questions about the local environment.</li> <li>• Observe life-cycle changes in a variety of living things e.g. plants in the vegetable garden or flower border, and animals in the local environment.</li> <li>• Research the work of naturalists and animal behaviourists e.g. David Attenborough and Jane Goodall.</li> </ul> <p><b><u>Working Scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Observe and compare the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times).</li> <li>• Ask relevant questions and suggest reasons for similarities and differences.</li> <li>• Grow new plants from different parts of the parent plant e.g. seeds, stem and root cuttings, tubers, bulbs.</li> <li>• Observe changes in an animal over a period of time (e.g. by hatching and rearing chicks),</li> <li>• Compare how different animals reproduce and grow.</li> </ul>	<p><b>Challenge:</b> To research different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals.</p>
<p><b>Animals Including Humans</b></p>		
<ul style="list-style-type: none"> <li>• To describe the changes as humans develop to old age.</li> </ul>	<ul style="list-style-type: none"> <li>• Draw a timeline to indicate stages in the growth and development of humans.</li> <li>• Learn about the changes experienced in puberty.</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Research the gestation periods of other animals and compare them with humans.</li> <li>• Find out and record the length and mass of a baby as it grows.</li> </ul>	<p><b>Challenge:</b> Pupils can create a timeline to include stages of growth in certain animals, such as frogs and butterflies.</p>
<p><b>Properties and Changes of Materials</b></p>		

<ul style="list-style-type: none"> <li>• 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.</li> <li>• To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>• To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>• To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>• To demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• To 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>Build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials, including relating these to what they learnt about magnetism in year 3 and about electricity in year 4.</p> <ul style="list-style-type: none"> <li>• Explore reversible changes, including evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes.</li> <li>• Explore changes that are difficult to reverse e.g. burning, rusting and other reactions e.g. vinegar with bicarbonate of soda.</li> </ul> <p><b>Note:</b> Pupils are not required to make quantitative measurements about conductivity and insulation at this stage. It is sufficient for them to observe that some conductors will produce a brighter bulb in a circuit than others and that some</p> <p><b>Working scientifically:</b></p> <ul style="list-style-type: none"> <li>• Carry out tests to answer questions e.g. ‘Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?’</li> <li>• Compare materials in order to make a switch in a circuit.</li> <li>• Observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes.</li> <li>• Research and discuss how chemical changes have an impact on our lives e.g. cooking.</li> <li>• Discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.</li> </ul>	<p><b>Challenge:</b> Pupils can find out about how chemists create new materials, e.g. Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.</p>
<p><b>Earth and Space</b></p>		
<ul style="list-style-type: none"> <li>• To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</li> </ul>	<ul style="list-style-type: none"> <li>• Introduce a model of the sun and Earth that enables children to explain day and night.</li> </ul>	<p><b>Challenge:</b> To research the way</p>

<ul style="list-style-type: none"> <li>• To describe the movement of the Moon relative to the Earth.</li> <li>• To describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• To 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>	<ul style="list-style-type: none"> <li>• Learn that the sun is a star at the centre of our solar system and that it has 8 planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006).</li> <li>• Understand that a moon is a celestial body that orbits a planet (Earth has 1 moon; Jupiter has 4 large moons and numerous smaller ones).</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Compare the time of day at different places on the Earth through internet links and direct communication. Create simple models of the solar system.</li> <li>• Construct simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.</li> <li>• Find out why some people think that structures such as Stonehenge might have been used as</li> <li>• astronomical clocks.</li> </ul>	<p>that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.</p>
<p><b>Forces</b></p>		
<ul style="list-style-type: none"> <li>• To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</li> <li>• To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore falling objects and raise questions about the effects of air resistance.</li> <li>• Explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall.</li> <li>• Experience forces that make things begin to move, get faster or slow down.</li> <li>• Explore the effects of friction on movement and find out how it slows or stops moving objects e.g. by observing the effects of a brake on a bicycle wheel.</li> <li>• Explore the effects of levers, pulleys and simple machines on movement.</li> </ul> <p><b><u>Work scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Explore falling paper cones or cupcake cases.</li> </ul>	<p><b>Challenge:</b> To research how scientists e.g. Galileo Galilei and Isaac Newton helped to develop the theory of gravitation</p>

	<ul style="list-style-type: none"><li>• Design and make a variety of parachutes.</li><li>• Carry out fair tests to determine which designs are the most effective.</li><li>• Explore resistance in water by making and testing boats of different shapes.</li><li>• Design and make products that use levers, pulleys, gears and/or springs and explore their effects.</li></ul>	
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**Year 6**

Learning Objectives	Key Skills	Notes
<b>Working Scientifically</b>		
<ul style="list-style-type: none"> <li>• To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>• To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>• To use test results to make predictions to set up further comparative and fair tests.</li> <li>• To 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> <li>• To identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>	<p><b>Asking Questions</b></p> <ul style="list-style-type: none"> <li>• Asks questions raised by their own exploration of the world around them.</li> <li>• Use their science experiences to explore ideas and raise different kinds of questions</li> </ul> <p><b>Planning and setting up different types of enquiries</b></p> <ul style="list-style-type: none"> <li>• Continue to select and plan the most appropriate type of scientific enquiry to use to answer scientific questions</li> </ul> <p><b>Performing tests and using equipment</b></p> <ul style="list-style-type: none"> <li>• Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> </ul> <p><b>Observing and measuring</b></p> <ul style="list-style-type: none"> <li>• Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> </ul> <p><b>Identifying and classifying</b></p> <ul style="list-style-type: none"> <li>• Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment</li> </ul> <p><b>Gathering and recording data</b></p> <ul style="list-style-type: none"> <li>• Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately.</li> <li>• Take repeat measurements where appropriate.</li> <li>• Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul>	<p>Pupils should read, spell and pronounce scientific vocabulary correctly.</p>

	<p><b>Reporting, presenting and communicating data/findings</b></p> <ul style="list-style-type: none"> <li>• Use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degree of trust in results.</li> <li>• Use their results to make predictions and identify when further observations, comparative and fair tests might be needed.</li> </ul>	
<p><b>Living Things And Their Habitats</b></p>		
<ul style="list-style-type: none"> <li>• 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.</li> <li>• To give reasons for classifying plants and animals based on specific characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on their knowledge of grouping living things in year 4 by looking at the classification system in more detail.</li> <li>• Introduce the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided.</li> <li>• Make direct observations where possible.</li> <li>• Classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals).</li> <li>• Discuss reasons why living things are placed in one group and not another.</li> </ul> <p><b><u>Working Scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Use classification systems and keys to identify some animals and plants in the immediate environment.</li> <li>• To research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</li> </ul>	<p><b>Challenge:</b> To research the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification.</p>
<p><b>Animals Including Humans</b></p>		
<ul style="list-style-type: none"> <li>• To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>• To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system).</li> </ul>	<p><b>Challenge:</b> Pupils can make a diagram of the human body that outlines the main parts and explain how the</p>

<ul style="list-style-type: none"> <li>To describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and answer questions about how the circulatory system enables the body to function.</li> <li>Understand how to keep their bodies healthy.</li> <li>Understand how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body</li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</li> </ul>	<p>different parts work and depend on one another.</p>
<p><b>Evolution and Inheritance</b></p>		
<ul style="list-style-type: none"> <li>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</li> <li>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>	<ul style="list-style-type: none"> <li>Build on knowledge of fossils from year 3. Find out more about how living things on earth have changed over time.</li> <li>Understand the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when e.g. Labradors are crossed with poodles.</li> <li>Understand that variation in offspring over time can make animals more or less able to survive in particular environments e.g. by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox.</li> <li>Research the work of paleontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.</li> </ul> <p><b>Note:</b> Pupils are not expected to understand how genes and chromosomes work.</p> <p><b><u>Working scientifically:</u></b></p>	<p><b>Challenge:</b></p> <p>Pupils can analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet.</p>

	<ul style="list-style-type: none"> <li>• Observe and raise questions about local animals and how they are adapted to their environment.</li> <li>• Compare how some living things are adapted to survive in extreme conditions e.g. cactuses, penguins and camels</li> <li>• Analyse the advantages and disadvantages of specific adaptations, such as being on 2 feet rather than 4, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</li> </ul>	
<b>Light</b>		
<ul style="list-style-type: none"> <li>• To recognise that light appears to travel in straight lines.</li> <li>• 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.</li> <li>• 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</li> <li>• To 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>	<ul style="list-style-type: none"> <li>• Build on knowledge of light from year 3. <ul style="list-style-type: none"> <li>• Explore the way that light behaves, including light sources, reflection and shadows.</li> <li>• Discuss observations and make predictions.</li> </ul> </li> </ul> <p><b><u>Working scientifically:</u></b></p> <ul style="list-style-type: none"> <li>• Decide where to place rear-view mirrors on cars.</li> <li>• Design and make a periscope and use the idea that light appears to travel in straight lines to explain how it works.</li> <li>• Investigate the relationship between light sources, objects and shadows by using shadow puppets.</li> </ul>	<p><b>Challenge:</b> Pupils can extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters (they do not need to explain why these phenomena occur)</p>
<b>Electricity</b>		
<ul style="list-style-type: none"> <li>• To 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>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on their knowledge of electricity from year 4.</li> <li>• Construct simple series circuits, to help them to answer questions about what happens when they try different components e.g. switches, bulbs, buzzers and motors.</li> <li>• Learn how to represent a simple circuit in a diagram using recognised symbols.</li> </ul>	<p><b>Challenge:</b> To research how scientists e.g. Galileo Galilei and Isaac Newton helped to develop the theory of gravitation</p>

<ul style="list-style-type: none"><li>• To use recognised symbols when representing a simple circuit in a diagram.</li></ul>	<ul style="list-style-type: none"><li>• <b>Note:</b> Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity.</li></ul> <p><b><u>Work scientifically:</u></b></p> <ul style="list-style-type: none"><li>• Systematically identify the effect of changing one component at a time in a circuit.</li><li>• Design and make a set of traffic lights, a burglar alarm or some other useful circuit.</li></ul>	
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