



## Science

### Progression of Learning

#### Pupils should be taught to:

Development Matters has very few specific knowledge based objectives. Scientific skills will be taught continuously within each topic. Where there are specific knowledge based statements I have linked them to the KS1 topic areas.

Working Scientifically	Knowledge
<p>Early Learning Goals</p> <ol style="list-style-type: none"><li>1. Children are confident to try new activities, and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or don't need help. (ELG – Sc &amp; Sa)</li><li>2. They work as part of a group or class (ELG – MF &amp; B)</li><li>3. Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences or in response to stories or events (ELG – U)</li><li>4. Children express themselves effectively, showing awareness of listeners' needs. They use past, present and future forms accurately when talking about events that have happened or are to happen in the future. They develop their own narratives and explanations by connecting ideas or events. (ELG – S)</li><li>5. They handle equipment and tools effectively including pencils for writing (ELG - M &amp; H)</li><li>6. Children use their phonic knowledge to write words in ways which match their spoken sounds. They also write some irregular common words. They write simple sentences which can be read by themselves and others. Some words are spelt correctly and others are phonetically plausible. (ELG – W)</li></ol>	<p>Early Learning Goal</p> <ol style="list-style-type: none"><li>1. Children know about similarities and differences in relation to places, objects, materials and living things. (ELG – World)</li><li>2. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes (ELG – World)</li></ol> <p>Early Learning Goal</p> <ol style="list-style-type: none"><li>3. Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. (ELG – H and SC)</li></ol>



7. Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. (ELG – SSM)

### SCIENTIFIC ENQUIRY OBJECTIVES TO BE TAUGHT THROUGH OTHER TOPICS

Developments Matters ELG	Year 1 Year 2	Year 3 Year 4	Year 5 Year 6
<b>Working scientifically – Pupils should use the following scientific methods, processes and skills:</b>			
<p><b>Early Learning Goals</b> Children are confident to try new activities, and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or don't need help. (ELG – Sc &amp; Sa) They work as part of a group or class (ELG – MF &amp; B) Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences or in response to stories or events (ELG – U) Children express themselves effectively, showing awareness of listeners' needs. They use past, present and future forms accurately when talking about events that have happened or are to happen in the future. They develop their own narratives and explanations by connecting ideas or events. (ELG – S) They handle equipment and tools effectively including pencils for writing (ELG - M &amp; H) Children use their phonic knowledge to write words in ways which match their spoken sounds. They also write</p>	<ol style="list-style-type: none"> <li>1. Asking simple questions and recognising that they can be answered in different ways</li> <li>2. Observing closely, using simple equipment</li> <li>3. Performing simple tests</li> <li>4. Identifying and classifying</li> <li>5. Using their observations and ideas to suggest answers to questions</li> <li>6. Gathering and recording data to help in answering questions</li> </ol> <p><i>(There is detail of specific experiences it is desirable that KS1 children have in the notes and guidance section of the NC)</i></p>	<ol style="list-style-type: none"> <li>1. Asking relevant questions and using <b>different types of scientific enquiry</b> to answer them</li> <li>2. Setting up simple practical enquiries, comparative and fair tests</li> <li>3. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>4. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</li> <li>5. Recording finding using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</li> <li>6. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Planning <b>different types of scientific enquiries</b> to answer questions, including recognising and controlling variables where appropriate.</li> <li>2. Taking measurements using a range of scientific equipment with increasing accuracy and precision</li> <li>3. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs.</li> <li>4. Using test results to make predictions to set up further comparative and fair tests</li> <li>5. Use simple models to describe scientific ideas.</li> <li>6. Reporting and presenting findings from enquiries, including conclusions, causal</li> </ol>



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

<p>some irregular common words. They write simple sentences which can be read by themselves and others. Some words are spelt correctly and others are phonetically plausible. (ELG – W)</p> <p>Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. (ELG – SSM)</p>	<p><b>Pupils should experience different types of scientific enquiry:</b></p> <p>Fair test</p> <p>Observation over time (OoT)</p> <p>Pattern seeking/surveys</p> <p>Identifying, grouping and classifying</p> <p>Research</p>	<p>7. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>8. Identifying differences, similarities or changes related to scientific ideas or processes</p> <p>9. Using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>relationships and explanations of results, in oral and written forms such as displays and other presentations.</p> <p>7. Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>
---	---	---	---



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PUPILS SHOULD BE <b>TAUGHT</b> TO...						
<b>Living things and their habitats</b>						
<p>Early Learning Goal <b>Storytime</b> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes</p>		<p><b>Brilliant Britain through Brilliant Books/Storytime - Peter Rabbit</b> Explain and compare the differences between things that are living, dead and things that have never been alive Identify that most living things live in <b>habitats</b> to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. Identify and name a variety of plants and animals in their <b>habitats</b>, including <b>microhabitats (Key words that must be taught)</b> Describe how animals obtain their food from plants and other animals using the idea of a simple food chain and identify and name different sources of food.</p>		<p><b>Rainforests</b> Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p><b>Our World: America</b> Explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the process of reproduction in some plants (sexual and asexual) and animals Link to animals including humans topic</p>	<p><b>What's in the news?</b> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including plants, animals and micro-organisms Give reasons for classifying plants and animals based on specific characteristics.</p>



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants						
<p>Early Learning Goal Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.</p>	<p><b>Deep in the Woods</b> Identify and name a variety of common plants including garden plants, wild plants and trees and those classified as deciduous and evergreen Identify and describe the basic structure of a variety of common plants, including trees (including roots, stem/trunk, leaves and <b>flowers</b>.)</p>	<p><b>Potty about Plants</b> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p><b>British Clothing Since 1066 – plants as dyes</b> Identify and <b>describe the functions of</b> different parts of plants: roots, stem, leaves and <b>flowers</b> 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 Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>			



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans						
<p>Early Learning Goal Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.</p> <p>Early Learning Goal Children know about similarities and differences in relation to places, objects, materials and living things.</p> <p>They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes</p>	<p><b>Oceans, Seas and Pirates/Beside the Seaside</b></p> <p><b>Deep in the woods – objective 1 – woodland animals</b></p> <p>Identify and name a variety of common animals including birds, fish, amphibians, reptiles and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores, omnivores</p> <p>Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, and mammals, including pets) sense.</p>	<p><b>We're on Fire/Marvellous Me!</b></p> <p>Notice that animals including humans have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise and eating the right amounts of different types of food and hygiene.</p> <p><b>Year 1 objective taught in this topic:</b></p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each</p>	<p><b>Romans, Italy and Volcanoes</b></p> <p>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.</p> <p>Identify that humans and some animals have skeletons and muscles for support, protection and movement</p> <p>Link to Romans and Roman soldiers</p>	<p><b>Ancient Greeks</b></p> <p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p><b>Rainforests</b></p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p><b>Fossils and Dinosaurs</b></p> <p>Describe the changes as humans develop from birth to old age.</p> <p>SEX ED YEAR</p>	<p><b>Fighting for Freedom</b></p> <p>Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>LIFE BUS</p>



	Charles Darwin and his 'Sand Walk'					
--	------------------------------------	--	--	--	--	--

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light						
<p>Early Learning Goal <b>Science lab</b> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes</p>			<p>Stone Age to Iron Age - Stonehenge Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change</p>			<p>Anglo Saxons, Scots and Vikings Recognise that light appears to travel in straight lines 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. 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. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Topics for individual year groups							
	<p><b>Weather Experts</b> <b>Seasonal changes</b> Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>		<p><b>Romans, Italy and Volcanoes</b> <b>Rocks</b> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.</p>		<p><b>Earth and Space</b> <b>Earth and Space</b> Describe the movement of the earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <b>Ptolemy</b> <b>Alhazen</b> <b>Copernicus</b></p>	<p><b>Fossil and Dinosaurs</b> <b>Evolution and Inheritance</b> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <b>Mary Anning</b> <b>Charles Darwin</b> <b>Alfred Wallace</b></p>	



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound						
				<p><b>Off to Europe</b> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of sound and features of the object that produced it. Find patterns between the volume of sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases</p>		



Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces						
			<p><b>It's Magic!</b> <b>Forces and magnets</b> Compare how things move on different surfaces. Notice that some forces need contact between two objects but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. 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. Describe magnets as having 2 poles. Predict whether two magnets will attract and repel each other, depending on which poles are facing.</p>		<p><b>Ancient Egyptians Forces</b> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <b>Galileo</b> <b>Isaac Newton</b> <b>How did they build the pyramids?</b></p>	



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity						
				<p><b>It's Magic Electricity</b> Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 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. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators and associate metals with being good conductors</p>		<p><b>Inventors and Inventions Electricity</b> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in circuit.  Compare and give reasons for variations in how components function, including brightness of bulbs, loudness of buzzers and on/off position of switches  Use recognised symbols when representing a circuit in a diagram.</p>



**PARK STREET**  
CHURCH OF ENGLAND  
PRIMARY SCHOOL

Developments Matters ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Materials</b>						
<p><b>Early Learning Goal Science lab!</b></p> <p>Children know about similarities and differences in relation to places, objects, materials and living things.</p> <p>They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes</p>	<p><b>Penguins, Possums and Polar Bears</b></p> <p><b>Everyday materials</b></p> <p>Distinguish between an object and the material from which it is made</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p><b>Up, up and away</b></p> <p><b>Uses of everyday materials</b></p> <p>Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>Biographies: Dunlop, Mackintosh, MacAdam</p>		<p><b>Brilliant Britain - coasts</b></p> <p><b>States of matter</b></p> <p>Compare and group materials together according to whether they are solids, liquids or gases</p> <p>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.</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p><b>The Mayan</b></p> <p><b>Properties and changes materials</b></p> <p>Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.</p> <p>Know that some substances will dissolve in liquid to form a solution and how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated including through filtering, sieving and evaporating</p> <p>Give reasons, based on evidence from comparative and fair tests for the particular uses of everyday materials including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>Explain the 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.</p>	