

## Science Progression of Skills

### EYFS

#### Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

#### ELG: The Natural World

Explore the natural world around them, making observations and drawing pictures of animals and plants.

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.

Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

<b>Children in reception will be learning to:</b>	<b>Examples of how to support this:</b>
Explore the natural world around them.	Provide children with have frequent opportunities for outdoor play and exploration.

Children in reception will be learning to:	Examples of how to support this:
	<p>Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.</p> <p>Create opportunities to discuss how we care for the natural world around us.</p> <p>Offer opportunities to sing songs and join in with rhymes and poems about the natural world.</p> <p>After close observation, draw pictures of the natural world, including animals and plants.</p> <p>Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.</p>
Describe what they see, hear and feel whilst outside.	<p>Encourage focused observation of the natural world.</p> <p>Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.</p> <p>Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.</p> <p>Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside.</p>
Recognise some environments that are different to the one in which they live.	<p>Teach children about a range of contrasting environments within both their local or national region.</p> <p>Model the vocabulary needed to name specific features of the natural world, both natural and man-made.</p>

Children in reception will be learning to:	Examples of how to support this:
	<p>Share non-fiction texts that offer an insight into contrasting environments.</p> <p>Listen to how children communicate their understanding of their own environment and contrasting environments through conversation and in play.</p>
<p>Understand the effect of changing seasons on the natural world around them.</p>	<p>Guide children's understanding by draw children's attention to the weather and seasonal features.</p> <p>Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons.</p> <p>Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change.</p> <p>Look for children incorporating their understanding of the seasons and weather in their play.</p>

	KS1	LKS2	UKS2
Asking Questions and Carrying Out Fair and Comparative Tests	<p><b>KS1 Science National Curriculum</b> Asking simple questions and recognising that they can be answered in different ways.</p> <p>Performing simple tests.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a explore the world around them, leading them to ask some simple scientific questions about how and why things happen;</li> <li>b begin to recognise ways in which they might answer scientific questions;</li> <li>c ask people questions and use simple secondary sources to find answers;</li> <li>d carry out simple practical tests, using simple equipment;</li> <li>e experience different types of scientific enquiries, including practical activities;</li> <li>f talk about the aim of scientific tests they are working on.</li> </ul>	<p><b>Lower KS2 Science National Curriculum</b> Asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a start to raise their own relevant questions about the world around them in response to a range of scientific experiences;</li> <li>b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;</li> <li>c recognise when a fair test is necessary;</li> <li>d help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used;</li> <li>e set up and carry out simple comparative and fair tests.</li> </ul>	<p><b>Upper KS2 Science National Curriculum</b> Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Using test results to make predictions to set up further comparative and fair tests.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a with growing independence, raise their own relevant questions about the world around them in response to a range of scientific experiences;</li> <li>b with increasing independence, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;</li> <li>c explore and talk about their ideas, raising different kinds of scientific questions;</li> <li>d ask their own questions about scientific phenomena;</li> <li>e select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;</li> <li>f make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them;</li> <li>g plan, set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary;</li> <li>h use their test results to identify when further tests and observations may be needed;</li> <li>i use test results to make predictions for further tests.</li> </ul>

<b>Observing and Measuring Changes</b>	<p><b>KS1 Science National Curriculum</b> Observing closely, using simple equipment.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a observe the natural and humanly constructed world around them;</li> <li>b observe changes over time;</li> <li>c use simple measurements and equipment;</li> <li>d make careful observations, sometimes using equipment to help them observe carefully.</li> </ul>	<p><b>Lower KS2 Science National Curriculum</b> Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a make systematic and careful observations;</li> <li>b observe changes over time;</li> <li>c use a range of equipment, including thermometers and data loggers;</li> <li>d ask their own questions about what they observe;</li> <li>e where appropriate, take accurate measurements using standard units using a range of equipment.</li> </ul>	<p><b>Upper KS2 Science National Curriculum</b> Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a choose the most appropriate equipment to make measurements and explain how to use it accurately;</li> <li>b take measurements using a range of scientific equipment with increasing accuracy and precision;</li> <li>c make careful and focused observations;</li> <li>d know the importance of taking repeat readings and take repeat readings where appropriate.</li> </ul>
<b>Identifying, Classifying, Recording and Presenting Data</b>	<p><b>KS1 Science National Curriculum</b> Identifying and classifying.</p> <p>Gathering and recording data to help in answering questions.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a use simple features to compare objects, materials and living things;</li> <li>b decide how to sort and classify objects into simple groups with some help;</li> <li>c record and communicate findings in a range of ways with support;</li> <li>d sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.</li> </ul>	<p><b>Lower KS2 Science National Curriculum</b> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a talk about criteria for grouping, sorting and classifying;</li> <li>b group and classify things;</li> <li>c collect data from their own observations and measurements;</li> <li>d present data in a variety of ways to help in answering questions;</li> <li>e use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge;</li> <li>f record findings using scientific language, drawings, labelled diagrams, keys, bar charts and tables.</li> </ul>	<p><b>Upper KS2 Science National Curriculum</b> Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a independently group, classify and describe living things and materials;</li> <li>b use and develop keys and other information records to identify, classify and describe living things and materials;</li> <li>c decide how to record data from a choice of familiar approaches;</li> <li>d record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar graphs and line graphs.</li> </ul>

**KS1 Science National Curriculum**

Using their observations and ideas to suggest answers to questions.

Children can:

- a notice links between cause and effect with support;
- b begin to notice patterns and relationships with support;
- c begin to draw simple conclusions;
- d identify and discuss differences between their results;
- e use simple and scientific language;
- f read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1;
- g talk about their findings to a variety of audiences in a variety of ways.

**Lower KS2 Science National Curriculum**

Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

Children can:

- a draw simple conclusions from their results;
- b make predictions;
- c suggest improvements to investigations;
- d raise further questions which could be investigated;
- e first talk about, and then go on to write about, what they have found out;
- f report and present their results and conclusions to others in written and oral forms with increasing confidence.

**Upper KS2 Science National Curriculum**

Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.

Children can:

- a notice patterns;
- b draw conclusions based in their data and observations;
- c use their scientific knowledge and understanding to explain their findings;
- d read, spell and pronounce scientific vocabulary correctly;
- e identify patterns that might be found in the natural environment;
- f look for different causal relationships in their data;
- g discuss the degree of trust they can have in a set of results;
- h independently report and present their conclusions to others in oral and written forms.

Using Scientific Evidence and  
Secondary Sources of  
Information

**Lower KS2 Science National Curriculum**

Identifying differences, similarities or changes related to simple scientific ideas and processes.

Using straightforward scientific evidence to answer questions or to support their findings.

Children can:

- a make links between their own science results and other scientific evidence;
- b use straightforward scientific evidence to answer questions or support their findings;
- c identify similarities, differences, patterns and changes relating to simple scientific ideas and processes;
- d recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.

**Upper KS2 Science National Curriculum**

Identifying scientific evidence that has been used to support or refute ideas or arguments.

Children can:

- a use primary and secondary sources evidence to justify ideas;
- b identify evidence that refutes or supports their ideas;
- c recognise where secondary sources will be most useful to research ideas and begin to separate opinion from fact;
- d use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas;
- e talk about how scientific ideas have developed over time.