



Progression of Skills in Science

Overview:

In science, we are developing both pupils' knowledge and their ability to work scientifically, in an integrated way. We want them to think clearly and understand the ideas of investigating and concluding, as well as gaining the knowledge necessary for today's world. We want to teach in such a way that ignites their excitement and curiosity.

Vocabulary – because of the nature of the subject vocabulary is integrated into knowledge and skills, shown in italics, and develops throughout the Key Stages. There is a separate vocabulary list for each year group.

Observing							
EYFS		Key Stage 1		Key Stage 2			
2/3 Years 3/4 Years (Ages in brackets)	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Notice and respond to natural phenomena eg rain, puddles, flowers, minibeasts (2/3)	Describe what they see, hear and feel <u>Say what is the same and what different about what they see (ELG)</u>	Begin to make deliberate observations about what they <i>see, hear, smell and feel</i> Ask more complex questions about what they <i>see,</i>	Make observations using all their senses Ask questions about the world around us and recognise that they can find	Ask questions about their scientific topics Observe detail carefully Use different methods to answer questions,	Ask questions directly related to their science knowledge. Understand that they can use research, observation and experiments to	Understand that there are different types of scientific enquiry eg observing over time; identifying and <i>classifying</i> through	Identify which sort of enquiry they will use

Listen to and feel things as well as look at them (3/4) Talk about what they see (3/4) Notice changes eg how a plant changes as it grows, an apple core decaying (3/4)	<u>Draw pictures of animals and plants (ELG)</u> Ask simple questions about what they see	hear, smell and feel	answers in different ways	including research, observation and experiments.	answer their questions.	observation; pattern seeking; Research; <i>comparative</i> or <i>fair testing</i> .	
Predicting							
Start to respond to adult saying 'I wonder if...'(3-4)	Make <i>guesses</i> during play eg with water and floating.	Make simple guesses about what will happen	Make <i>predictions</i> based on their questions	Use both research and tests to try to answer questions, making predictions.	Make predictions based on scientific knowledge.	Plan a test based on a scientific prediction	Choose the best type of enquiry to test a prediction, and say why.
Experimenting							
Explore what a magnifying glass or a magnifying app does (3-4) Explore how things work (3-4)	Try out their guesses	Use simple equipment with support	Use simple equipment with purpose such as <i>timers</i> , rulers and <i>magnifying glasses</i> Understand that a test should be fair	Use more complex equipment such as <i>data loggers</i> with support Start to identify ways to make a test fair	Make decisions about the best way to answer their questions. Suggest what equipment they will need. Use thermometers and dataloggers. independently	Understand that sometimes taking several measurements and averaging can make results more accurate. Choose and use equipment with precision.	Make decisions to ensure that their results will be as trustable as possible – understand the idea of degree of trust. Identify when they may have made errors.

					Measure using standard units. Identify what needs to be kept the same to make a test fair.	Explain which <i>variables</i> need to be controlled.	Take repeat readings when necessary.
Analysing, concluding and classifying							
	<p>Say what happened</p> <p>Suggest a simple reason for what happened</p> <p>Start to use comparative terms – eg <i>bigger</i>.</p> <p><u>Talk about changes they notice (ELG)</u></p>	<p>Record data with support in drawing a <i>table</i></p> <p>Compare relevant objects or pictures with support</p> <p>Use first hand experiences to suggest answers to questions</p>	<p>Compare objects, and suggest ways of comparing or grouping them.</p> <p>Record data in a variety of ways, including a table and a <i>diagram</i>.</p> <p>Use observations and their knowledge to suggest answers to questions.</p> <p>Say what happened in an <i>investigation</i>.</p>	<p>Record <i>data</i> in tables, <i>bar charts</i>, and diagrams.</p> <p>State what they have found out, using their data or observations.</p> <p>Suggest how an investigation could have been improved.</p>	<p>Record data in tables, bar charts, <i>keys</i>, <i>graphs</i> and diagrams, starting to choose the best way to record it.</p> <p>See patterns in results, such as <i>differences</i>, <i>similarities</i> or changes, and describe them.</p> <p>Draw on their scientific knowledge to suggest further questions or <i>explanations</i>.</p>	<p>Choose a recording method that helps them analyse</p> <p>Start to <i>systematically</i> analyse and compare their data</p> <p>Use their scientific knowledge to draw conclusions eg develop keys, analyse data mathematically.</p> <p>Say whether they applied fair testing effectively</p>	<p>Choose the best recording method and say why – eg scientific diagrams, keys, tables, <i>scatter graphs</i>, <i>line graphs</i>..</p> <p>Systematically analyse and compare their data.</p> <p>Recognise when further tests are necessary</p> <p>Understand that scientists' conclusions help their ideas to change over time.</p>

Whole School Science Opportunities

In school opportunities:

British Science Week – whole school activities

CLJ links

Home learning whole school activities shared (e.g. aspirations / interviews)

Display

WOW Days – rainforest dioramas, making trebuchets, superhero costume/gadget design

Living eggs – Nursery (animals, Rec animals and babies)

Assembly:

Special people assembly – e.g. Professor Brian Cox, Sir David Attenborough, Mary Anning, Galileo Galilei

Own class assembly

Special weeks – British Science Week

Special Days Assembly – e.g. World Environment Day, World Oceans Day, Earth Day etc

Visitor assemblies – e.g. Recycling from County Council

Picture News – current news STEM links eg vaccines, environmental issues (tree planting)

External opportunities:

Trips/visits as part of CLJ (e.g. Farm, Blashford Lakes, Paulton's Park, Moors Valley)

Year 5 visit to secondary school science lab for practical experiments

Home learning activities linked to CLJ themes