



## Working Scientifically Progression Overview Table

	EYFS	Key stage 1	Lower key stage 2	Upper key stage 2
Ideas and questions	<p>Pupils should be taught to:</p> <p><b>Begin to ask 'why' questions about their experiences</b></p> <p><b>Answer how and why questions about their experiences</b></p>	<ul style="list-style-type: none"><li>• asks simple questions and recognising that they can be answered in different ways</li><li>• recognises scientific and technical developments that help us</li></ul>	<ul style="list-style-type: none"><li>• asks relevant questions and using different types of scientific enquiries to answer them</li><li>• explains the purposes of a variety of scientific and technological developments</li></ul>	<ul style="list-style-type: none"><li>• uses their scientific experiences to explore ideas and raise different types of questions</li><li>• talks about how scientific ideas have developed over time</li><li>• recognises the applications of specific scientific ideas</li></ul>
Planning an approach	<p><b>Find ways to solve problems and test their ideas</b></p>	<ul style="list-style-type: none"><li>• performs simple tests or follows teachers' instructions</li><li>• with guidance, suggests what they will do</li><li>• with guidance, identifies things to measure or observe that are relevant to the question</li></ul>	<ul style="list-style-type: none"><li>• sets up simple practical enquiries, comparative and fair tests</li><li>• begins to make decisions about what observations to make and how long to make them for</li></ul>	<ul style="list-style-type: none"><li>• selects and plans different types of scientific enquiries to answer questions</li><li>• makes decisions about what observations to make, what measurements to use, how long to make them for and whether to repeat them</li></ul>
Equipment	<p><b>Observe closely using simple equipment</b></p>	<ul style="list-style-type: none"><li>• uses resources provided or chosen from a limited range</li><li>• uses simple measurements and equipment to gather data</li></ul>	<ul style="list-style-type: none"><li>• begins to choose the type of simple equipment that might be used from a reasonable range</li><li>• uses appropriate equipment and measurements with reasonable accuracy</li></ul>	<ul style="list-style-type: none"><li>• chooses the most appropriate equipment to make measurements</li><li>• explains how to use the equipment accurately</li></ul>

Variables		<ul style="list-style-type: none"> <li>• suggests why a test is unfair</li> </ul>	<ul style="list-style-type: none"> <li>• recognises when a simple fair test is needed</li> <li>• with help, decides how to set up a fair test and control variables</li> </ul>	<ul style="list-style-type: none"> <li>• recognises when and how to set up comparative and fair tests</li> <li>• <b>recognises and controls variables where necessary</b> (e.g. explains which variables need to be controlled and why)</li> </ul>
-----------	--	---	--	--

Observing and measuring	<b>Use senses to explore the world around them</b>	<ul style="list-style-type: none"> <li>• <b>observes closely</b> (including changes over time), <b>using simple equipment</b></li> <li>• makes measurements using non- standard units</li> </ul>	<ul style="list-style-type: none"> <li>• <b>makes systematic and careful observations</b></li> <li>• <b>makes accurate measurements using standard units (e.g. cm, m, °C, N, g, Kg, ml), using a range of equipment, e.g. data loggers and thermometers</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>takes measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision</b></li> <li>• <b>takes repeat readings when appropriate</b></li> </ul>
Secondary sources	Begins to look at different sources of information (e.g. books, photographs, ICT).	<ul style="list-style-type: none"> <li>• uses simple secondary sources to find answers, e.g. books, videos, photographs or people</li> </ul>	<ul style="list-style-type: none"> <li>• recognises when and how secondary sources (e.g. books, internet, experts, diagrams) might help answer questions that cannot be answered through practical investigations</li> </ul>	<ul style="list-style-type: none"> <li>• recognises which secondary sources will be most useful to research their ideas</li> <li>• begins to separate opinion from fact</li> </ul>
Recording information and data	<b>Attempt to make simple notes about what they observe</b>	<ul style="list-style-type: none"> <li>• <b>gathers and records simple data to help in answering questions</b></li> <li>• with support, prepares simple tables to record data</li> </ul>	<ul style="list-style-type: none"> <li>• <b>gathers and records data in a variety of ways to help in answering questions</b></li> <li>• prepares own format for recording data</li> <li>• makes decisions about how to record and analyse the data</li> </ul>	<ul style="list-style-type: none"> <li>• <b>records data and results of increasing complexity</b></li> <li>• decides how to record data from a choice of familiar approaches</li> <li>• calculates mean value where appropriate</li> </ul>

Presenting evidence	Talks about what they find out from simple observations.	<ul style="list-style-type: none"> <li>• with help, records their findings in a range of ways, e.g. simple tables, diagrams, pictograms, sorting circles, bar charts and templates</li> <li>• talks about their findings using everyday terms, text scaffolds or simple scientific language</li> </ul>	<ul style="list-style-type: none"> <li>• records and presents findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables</li> <li>• reports on findings from enquiries, in simple scientific language, using oral and written explanations, displays or presentations of results and conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• records and presents findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>• reports on findings from enquiries, using relevant scientific language and conventions, in oral and written explanations such as displays and other presentations</li> </ul>
---------------------	--	--	---	---

Looking for patterns	<p>Notices change and patterns in the world around them.</p> <p>Can talk about how the seasons change and some of the things they observe.</p>	<ul style="list-style-type: none"> <li>• uses simple observable features to compare objects, materials and living things</li> <li>• <b>identifies and classifies</b> (decides how to sort and group objects)</li> <li>• with guidance, begins to notice changes (i.e. cause and effect), patterns and relationships (i.e. how one variable affects another)</li> </ul>	<ul style="list-style-type: none"> <li>• uses observable and other criteria to group, sort and classify in different ways (including simple keys and branching databases)</li> <li>• <b>identifies differences, similarities or changes related to simple scientific ideas and processes</b></li> <li>• with help, looks for changes, patterns, and relationships in their data</li> </ul>	<ul style="list-style-type: none"> <li>• uses and develops keys and other information records to identify, classify and describe living things and materials</li> <li>• <b>identifies conclusions, causal relationships and patterns</b></li> </ul>
Explaining results	<p>Link information to give simple explanations about scientific processes in the world around them.</p>	<ul style="list-style-type: none"> <li>• talks about what they have found out and how they found it out</li> <li>• <b>uses their observations and ideas to suggest answers to questions</b></li> <li>• uses comparative language to describe changes, patterns and relationships</li> </ul>	<ul style="list-style-type: none"> <li>• with help, <b>uses results to draw simple conclusions</b> and answers questions using appropriate level of knowledge</li> <li>• <b>uses straightforward scientific evidence to answer questions or to support their findings</b></li> <li>• uses relevant scientific language to discuss their ideas and communicate their findings</li> </ul>	<ul style="list-style-type: none"> <li>• draws valid conclusions, explains and interprets the results (<b>including the degree of trust</b>) using scientific knowledge and understanding (e.g. recognises limitations of data)</li> <li>• <b>identifies scientific evidence that has been used to support or refute ideas or arguments</b></li> <li>• uses relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas</li> </ul>

Evaluating	With support, children begin to think about the ways they chose to do things and how they would do things differently next time.	<ul style="list-style-type: none"> <li>• with support, suggests whether or not what happened was what they expected</li> <li>• with support, suggests different ways they could have done things</li> </ul>	<ul style="list-style-type: none"> <li>• with support, <b>uses results to suggest improvements</b> to what they have done</li> <li>• with support, <b>raise further questions</b> (e.g. arising from the data)</li> <li>• with support, <b>makes predictions for new values</b> within or beyond the data collected</li> </ul>	<ul style="list-style-type: none"> <li>• makes practical suggestions about how their working method could be improved (e.g. the effect of sample size on reliability)</li> <li>• uses results to identify when further tests and observations might be needed</li> <li>• <b>uses test results to make predictions and to set up further comparative and fair tests</b></li> </ul>
------------	--	---	--	---

### Vocabulary for working scientifically:

Variable, evidence, fair test, method, equipment, results, conclusion, accurate, reliable, prediction supports, observe, measure, question,