



## Farlow and Kinlet C. of E. Primary Schools Progression in scientific enquiry skills



	<b>Reception</b>	<b>End of Key Stage 1</b>	<b>Years 3 and 4</b>	<b>Years 5 and 6</b>
Questioning and enquiry planning	<ul style="list-style-type: none"> <li>Children explore the world around them and make observations.</li> </ul>	<ul style="list-style-type: none"> <li>Ask simple questions about the world around us.</li> <li>Recognise that questions can be answered in different ways.</li> </ul>	<ul style="list-style-type: none"> <li>Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>Explore the relationships between living things and familiar environments.</li> <li>Begin to develop their ideas about functions, relationships and interactions.</li> <li>Raise their own questions about the world around them.</li> <li>Make some decisions about which types of enquiry will be the best way of answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>Begin to recognise scientific ideas change and develop over time.</li> <li>Select the most appropriate ways to answer science questions using different types of scientific enquiry.</li> </ul>
Observing and measuring.	<ul style="list-style-type: none"> <li>Children make observations and talk about what they have seen.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to observe closely using simple equipment.</li> </ul>	<ul style="list-style-type: none"> <li>Make systematic and careful observations and, where appropriate, take accurate measurements using standard</li> </ul>	<ul style="list-style-type: none"> <li>Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.</li> </ul>

Pattern seeking		<ul style="list-style-type: none"> <li>• Use observations and ideas to suggest answers to questions.</li> <li>• Observe changes over time and, with guidance, begin to notice patterns and relationships.</li> <li>• To say what I am looking for and what I am measuring.</li> <li>• To know how to use simple equipment safely.</li> <li>• Use simple measurements and equipment with increasing independence eg hand lenses and egg timers.</li> <li>• Begin to progress from non-standard units, reading mm,cm,m,l etc.</li> </ul>	<ul style="list-style-type: none"> <li>• units, using a range of equipment including thermometers and data loggers.</li> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• Help to make decisions about what observations to make, how long to make them for and the type of equipment that might be used.</li> <li>• Learn to use new equipment eg data loggers.</li> <li>• I can see a pattern in my results.</li> <li>• I can choose from a selection of equipment.</li> <li>• I can observe and measure accurately using standard units.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify patterns that might be found in the natural environment.</li> <li>• 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>• Choose the most appropriate equipment and explain how to use it accurately.</li> <li>• I can interpret data and find patterns.</li> <li>• I can select equipment on my own.</li> <li>• I can make a set of observations and say what the interval and range are.</li> <li>• I can take accurate and precise measurements, including- N,g,kg,mm,cm,mins,seconds,km/h,m per second, pie charts, line and bar graphs</li> </ul>
Investigating	<ul style="list-style-type: none"> <li>• Children try out their ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• Perform simple tests (with support and then independently)</li> <li>• Discuss ideas about how to find things out.</li> <li>• Say what happened in an investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Set up simple practical enquiries, comparative and fair tests.</li> <li>• Recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>• Can think of more than one variable factor.</li> </ul>	<ul style="list-style-type: none"> <li>• Use test results to make predictions to set up further comparative and fair tests.</li> <li>• Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> <li>• Suggest improvements to my method and give reasons.</li> <li>• Decide when it is appropriate to do a fair test.</li> </ul>

Recording and reporting findings	<ul style="list-style-type: none"> <li>Children talk about what they have found out.</li> </ul>	<ul style="list-style-type: none"> <li>Gather and record data to help in answering questions.</li> <li>Record simple data.</li> <li>Record and communicate their findings in a range of ways.</li> <li>Can show my results in a table that my teacher has provided.</li> </ul>	<ul style="list-style-type: none"> <li>Gather, record, classify and present data in a variety of ways to help in answering questions.</li> <li>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</li> <li>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>Use notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>Can record results in tables and bar charts.</li> </ul>	<ul style="list-style-type: none"> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li> <li>Report and present findings from enquiries.</li> <li>Decide how to record data from a choice of familiar approaches.</li> <li>Can choose how best to present data.</li> </ul>
Identifying, grouping and classifying	<ul style="list-style-type: none"> <li>Children recognise differences and similarities and make comparisons between living things.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and classify.</li> <li>Observe and identify, compare and describe.</li> <li>Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> </ul>	<ul style="list-style-type: none"> <li>Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>Talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>Compare and group according to behaviour or properties, based on testing.</li> </ul>	<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>
Research	<ul style="list-style-type: none"> <li>Enjoy looking at books and know that pictures and information can</li> </ul>	<ul style="list-style-type: none"> <li>To begin to use secondary sources to find answers.</li> <li>I can find information to help me from books and computers with help.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> </ul>	<ul style="list-style-type: none"> <li>Recognise which secondary sources will be most useful to research their ideas.</li> </ul>

	tell us what we need to know.			
Conclusions	<ul style="list-style-type: none"> <li>• Talk to others about what they have discovered.</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to talk about what they have found out and how they found it out.</li> <li>• To say what happened in my investigation.</li> <li>• To say whether I was surprised at the results or not.</li> <li>• To say what I would change about my investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>• Use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• I can see a pattern in my results.</li> <li>• I can say what I found out, linking cause and effect.</li> <li>• I can say how I could make it better.</li> <li>• I can answer questions from what I have found out.</li> </ul>	<ul style="list-style-type: none"> <li>• Reporting and presenting 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>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>• Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</li> <li>• Use test results to make predictions to set up further comparatives and fair tests.</li> <li>• Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Separate opinion from fact.</li> <li>• Can draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> </ul>

				<ul style="list-style-type: none"> <li>• Use test results to make predictions to set up further comparative and fair tests.</li> </ul>
Vocabulary	<ul style="list-style-type: none"> <li>• Use familiar language to talk about the natural world, materials etc.</li> <li>• Use and understand new vocabulary.</li> </ul>	<ul style="list-style-type: none"> <li>• Use simple scientific language and some science words.</li> <li>• Use comparative language-bigger, faster etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Use some scientific language to talk and, later, write about what they have found out.</li> <li>• Use relevant scientific knowledge.</li> <li>• Use comparative and superlative language.</li> </ul>	<ul style="list-style-type: none"> <li>• Read, spell and pronounce scientific vocabulary correctly.</li> <li>• Use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas.</li> <li>• Can confidently use a range of scientific vocabulary.</li> <li>• Can use conventions such as trend, rogue result, support prediction and -er word generalisation.</li> <li>• Can use scientific ideas when describing simple processes.</li> <li>• Can use the correct science vocabulary.</li> </ul>