



# St Paul's CE VC Junior School – Working Scientifically Skills Progression Map

## Subject: Science

Year 3	Year 4	Year 5	Year 6
<b>Ask questions and plan enquiries</b>			
<p>Beginning to ask relevant questions and using different types of scientific enquiries to answer them.</p> <p>Begin to explore everyday phenomena and the relationships between living things and familiar environments.</p> <p>Begin to develop their ideas about functions, relationships and interactions.</p> <p>Begin to raise their own questions about the world around them.</p> <p>Begin to make some decisions about which type of enquiry will be the best way of answering questions including observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative and fair tests, finding things out using secondary sources.</p> <p>Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</p>	<p>Asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Explore everyday phenomena and the relationships between living things and familiar environments.</p> <p>Begin to develop their ideas about functions, relationships and interactions.</p> <p>Raise their own questions about the world around them.</p> <p>Make some decisions about which type of enquiry will be the best way of answering questions including observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative and fair tests, finding things out using secondary sources.</p> <p>Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</p>	<p>Beginning to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</p> <p>Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</p> <p>Begin to recognise scientific ideas change and develop over time.</p> <p>Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry (including observing changes over different periods of time, noticing patterns, grouping and classifying, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.)</p> <p>Begin to recognise which secondary sources will be most useful to research their ideas.</p>	<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</p> <p>Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</p> <p>Begin to recognise scientific ideas change and develop over time.</p> <p>Select the most appropriate ways to answer science questions using different types of scientific enquiry (including observing changes over different periods of time, noticing patterns, grouping and classifying, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.)</p> <p>Recognise which secondary sources will be most useful to research their ideas.</p>

Year 3	Year 4	Year 5	Year 6
<b>Set up enquiries</b>			
<p>Beginning to set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to recognise when a simple fair test is necessary and help to decide how to set it up.</p> <p>Begin to think of more than one variable factor.</p>	<p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Recognise when a simple fair test is necessary and help to decide how to set it up.</p> <p>Can think of more than one variable factor.</p>	<p>Beginning to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Beginning to use test results to make predictions to set up further comparative and fair tests.</p> <p>Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</p> <p>Begin to decide when it is appropriate to do a fair test.</p>	<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Use test results to make predictions to set up further comparative and fair tests.</p> <p>Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</p> <p>Decide when it is appropriate to do a fair test.</p>
Year 3	Year 4	Year 5	Year 6
<b>Observe and measure</b>			
<p>Beginning to make 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>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</p> <p>Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</p>	<p>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>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</p> <p>Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</p>	<p>Beginning to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Begin to identify patterns that might be found in the natural environment.</p> <p>Begin to 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. Choose the most appropriate equipment and explain how to use it accurately.</p>	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Identify patterns that might be found in the natural environment.</p> <p>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. Choose the most appropriate equipment and explain how to use it accurately.</p>

<p>Begin to observe and measure accurately using standard units including time in minutes and seconds.</p> <p>Learn to use some new equipment appropriately (eg data loggers).</p> <p>Begin to see a pattern in results.</p> <p>Begin to choose from a selection of equipment.</p>	<p>Can observe and measure accurately using standard units including time in minutes and seconds.</p> <p>Learn to use new equipment appropriately (eg data loggers).</p> <p>Can see a pattern in my results.</p> <p>Can choose from a selection of equipment.</p>	<p>Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec</p>	<p>Accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec</p>
<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Record</b>			
<p>Beginning to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Begin to talk about criteria for grouping, sorting and classifying and use simple keys.</p> <p>Begin to compare and group according to behaviour or properties, based on testing.</p> <p>Begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.</p> <p>Begin to record results in tables and bar charts.</p>	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Talk about criteria for grouping, sorting and classifying and use simple keys.</p> <p>Compare and group according to behaviour or properties, based on testing.</p> <p>Use notes, simple tables and standard units and help to decide how to record and analyse their data.</p> <p>Can record results in tables and bar charts.</p>	<p>Beginning to record data and results of using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Begin to interpret data and find patterns. Select equipment on my own. Can make a set of observations and say what the interval and range are.</p> <p>Begin to use and develop keys and other information records to identify, classify and describe living things and materials.</p> <p>Can present results in pie charts and line graphs</p>	<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Can interpret data and find patterns. Select equipment on my own. Can make a set of observations and say what the interval and range are.</p> <p>Use and develop keys and other information records to identify, classify and describe living things and materials.</p> <p>Can present results in pie charts, bar charts and line graphs</p>

Year 3	Year 4	Year 5	Year 6
<b>Interpret and report</b>			
<p>Beginning to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</p> <p>Am beginning to see a pattern in my results.</p> <p>Am beginning to say what I found out, linking cause and effect.</p>	<p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Can see a pattern in my results.</p> <p>Can say what I found out, linking cause and effect.</p>	<p>Beginning to report and represent 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.</p> <p>Begin to decide how to record data from a choice of familiar approaches.</p> <p>Begin to choose how best to present data.</p> <p>Know which evidence proves a scientific point.</p> <p>Can use simple models.</p>	<p>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</p> <p>Report and present findings from enquiries.</p> <p>Decide how to record data from a choice of familiar approaches.</p> <p>Can choose how best to present data.</p> <p>Know which evidence proves a scientific point.</p> <p>Can use simple models.</p>
Year 3	Year 4	Year 5	Year 6
<b>Evaluate</b>			
<p>Beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</p> <p>Am beginning to say how I could make it better.</p>	<p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</p> <p>Can say how I could make it better.</p> <p>Can answer questions from what I have found out.</p>	<p>Beginning to use test results to make predictions to set up further comparative and fair tests.</p> <p>Begin to suggest improvements to my method and give reasons.</p> <p>Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</p>	<p>Use test results to make predictions to set up further comparative and fair tests.</p> <p>Suggest improvements to my method and give reasons.</p> <p>Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</p>

<p>Am beginning to answer questions from what I have found out.</p> <p>Beginning to use straightforward scientific evidence to answer questions or to support their findings.</p> <p>Beginning to identify differences, similarities or changes related to simple scientific ideas and processes.</p>	<p>Using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p>	<p>Beginning to identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Begin to separate opinion from fact.</p>	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Separate opinion from fact.</p>
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