



St Leo's and Southmead Catholic Nursery and Primary School
Working Scientifically - Progression of Enquiry Skills

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Asking questions	<p>Begin to explore the world around them and raise their own simple questions</p> <p>Begin to recognise that their questions can be answered in different ways</p>	<p>Explore the world around them and confidently raise their own simple questions</p> <p>Recognise that their questions can be answered in different ways</p>	<p>Raise their own relevant questions about the world around them</p> <p>Begin to make some decisions about which type of enquiry will be the best way to investigate their questions.</p>	<p>Ask relevant (increasingly complex) questions about the world around them</p> <p>Decide which type of enquiry would be most appropriate to answer the question</p>	<p>Use their science experiences to explore ideas and raise different kinds of questions</p> <p>Begin to recognise that scientific ideas change and develop over time.</p> <p>Begin to identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry</p>	<p>Plan 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</p> <p>Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</p>



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<p>Planning and setting up different types of enquiries</p>	<p>Experience different types of science enquiries, including practical activities</p> <p>Begin to recognise different ways they might answer scientific questions</p>	<p>Experience different types of science enquiries, including practical activities</p> <p>Recognise different ways they might answer scientific questions</p>	<p>Be given a range of scientific experiences including different types of science enquiries to answer. *</p> <p>Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer scientific questions</p>	<p>Continue to experience a range of more complex scientific enquiries</p> <p>Confidently decide the most appropriate type of scientific enquiry in response to their own or given questions</p>	<p>Begin to select and plan the most appropriate type of scientific enquiry to use to answer scientific questions</p> <p>Begin to use enquiry results to make predictions to set up further scientific enquiries</p>	<p>Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions</p> <p>Use enquiry results to make predictions to set up further scientific enquiries</p>
<p>Performing tests</p>	<p>With support, conduct simple tests</p>	<p>Begin to independently conduct simple tests</p> <p>Make simple oral predictions</p>	<p>Begin to set up 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>Recognise when a simple fair test is necessary and begin to work as a group to decide how to set it up.</p> <p>Confidently make predictions and state which variables are staying the same and which is changing</p>	<p>Recognise when and how to set up comparative and fair tests, beginning to explain which variables need to be controlled and why.</p> <p>Begin to suggest improvements to the method stating reasons.</p>	<p>Recognise when and how to set up comparative and fair tests, explaining which variables need to be controlled and why.</p> <p>Think critically about their test and suggest improvements stating reasons</p>



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			Begin to make a written predictions and identify orally how the test is fair (if appropriate)			
Using equipment	Be given simple equipment to use (magnets, mirrors etc)	With support, identify simple equipment to use	As part of a group, discuss and make decisions about the type of simple equipment to use	Begin to independently decide the type of simple equipment to use	Choose the most appropriate equipment to use or make measurements with	Confidently choose and use a variety of different types of scientific and measuring equipment
Observing & measuring	<p>With help, observe closely using simple equipment, including changes over a period of time</p> <p>Use simple measurements (eg, egg timers, non standard units)</p>	<p>Begin to independently observe closely, using simple equipment, including changes over a period of time</p> <p>Use simple measurements (standard units)</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>Begin to make systematic and careful observations</p> <p>Take accurate measurement using standard units</p> <p>Learn how to use new measuring</p>	<p>As part of a group, discuss what observations to make, how long to make them for and the type of simple equipment that might be used</p> <p>As part of group, make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.</p>	<p>Begin to make their own decision about what observations to make, what measurements to use and how long to use them for</p> <p>Begin to chose the most appropriate measuring equipment (for precision) and begin explain how to use it</p> <p>Take repeat measurements where appropriate</p>	<p>Independently make their own decision about what observations to make, measurements to use and how long to use them for</p> <p>Chose the most appropriate measuring equipment (for precision) and explain how to use it accurately</p> <p>Take repeat measurements where appropriate</p>



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<p>Pattern seeking</p>	<p>With guidance, begin to notice simple patterns and relationships</p>	<p>As part of a group, begin to notice simple patterns and relationships</p>	<p>equipment (eg, thermometers)</p> <p>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them</p>	<p>As part of a group or pair, look for naturally occurring patterns and relationships and decide what data to collect to identify them</p>	<p>Begin to independently identify patterns that might be found in the natural environment</p> <p>Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas (group work)</p>	<p>Independently identify patterns that might be found in the natural environment</p> <p>Independently identify for different causal relationships in their data and identify evidence that refutes or supports their ideas</p>
<p>Identifying, grouping & classifying</p>	<p>Use simple features to compare objects, materials and living things. With adult help, decide how to sort and group them</p>	<p>Use simple features to compare objects, materials and living things. With help (pairs/small group discussion), decide how to sort and group them</p>	<p>As part of a pair or group identify and discuss criteria for grouping, sorting and classifying: and use simple keys</p>	<p>Begin to independently identify and discuss criteria for grouping, sorting and classifying: and use simple keys</p>	<p>Begin to use and develop keys and other information records to identify, classify and describe living things and materials (in pairs or small group)</p>	<p>Independently use and develop keys and other information records to identify, classify and describe living things and materials.</p>



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<p>Gathering and recording data</p>	<p>Record simple data (with adult support/guidance)</p>	<p>Independently record simple data</p>	<p>Begin to collect and record data from their own/group observations and measurements in a variety of ways (notes, bar charts, tables, standard units, drawings, labelled diagrams, keys)</p> <p>Help to make decisions about how to analyse this data</p>	<p>Independently collect and record data from their own/group observations and measurements in a variety of ways (notes, bar charts, tables, standard units, drawings, labelled diagrams, keys)</p> <p>Begin to independently think about how to analyse this data and then share with others</p>	<p>As part of a group/pair, decide how to record data and results of increasing complexity from a choice of familiar approaches; diagrams and label, classification keys, tables, scatter graphs, bar and line graphs</p>	<p>Independently decide how to record data and results of increasing complexity from a choice of familiar approaches; diagrams and label, classification keys, tables, scatter graphs, bar and line graphs</p>
<p>Reporting, presenting and communicating data/findings including spoken language and use of scientific vocabulary</p>	<p>With prompts as needed, use their observations and ideas to orally suggest answers to questions</p> <p>Talk about what they have found out and how they found it out</p>	<p>Use their observations and ideas to orally suggest answers to questions</p> <p>Talk about what they have found out and how they found it out</p>	<p>With help (initially whole class), pupils look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions</p>	<p>With help (paired discussion), pupils look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions</p>	<p>Begin to use scientific language and illustrations to discuss, communicate and justify their scientific ideas.</p> <p>Begin to use oral and written forms such as displays</p>	<p>Use scientific language and illustrations to discuss, communicate and justify their scientific ideas.</p> <p>Use oral and written forms such as displays and other</p>



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	<p>With adult help or simple writing frames, record and communicate their findings in a range of ways and begin to use simple scientific language.</p>	<p>With modelling to support, record and communicate their findings in a range of ways and begin to use simple scientific language.</p>	<p>Begin to confidently use an increasing range of relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, display or presentations of results and conclusions.</p> <p>With support (whole class), they identify new questions arising from the data, making predictions for new values within or beyond the data they have</p>	<p>Begin to confidently use an increasing range of relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, display or presentations of results and conclusions.</p> <p>With support (paired discussion), they identify new questions arising from the data, making predictions for new values within or beyond the data they have</p>	<p>and other presentations to report conclusions, causal relationships and explanations of degree of trust in results</p> <p>Begin to use their results to make predictions and identify when further observations, comparative and fair tests might be needed</p>	<p>presentations to report conclusions, causal relationships and explanations of degree of trust in results</p> <p>Use their results to make predictions and identify when further observations, comparative and fair tests might be needed</p>
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			collected and find ways of improving what they have already done	collected and find ways of improving what they have already done		
Research	Ask people questions and use simple secondary sources to find answers (for example, age appropriate animations, videos and photographs)	Ask people questions and use simple secondary sources to find answers (for example, age appropriate animations, videos, books and photographs)	Begin to recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	Begin to recognise which secondary sources will be most useful to research their ideas.	Recognise which secondary sources will be most useful to research their ideas. Begin to separate opinion from fact

***The five enquiry types**

- Observation over time.
- Pattern seeking.
- Identifying, classifying and grouping.
- Comparative and fair testing.
- Research using secondary sources.

Sources used in this document:

- National Curriculum 2014
- Working Scientifically: Progression of Enquiry Skills (©www.ciec.org.uk)