



Shine as Lights in the World

Working Scientifically Progression

		Nursery/ Reception	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
			Y1	Y2	Y3	Y4	Y5	Y6
PLAN	Planning	<p>Show curiosity about objects, events and people (Playing and Exploring)</p> <p>Questions why things happen (Speaking:30-50 months)</p> <p>Engage in open-ended activity (Playing and Exploring)</p> <p>Take a risk, engage in new experiences and learn by trial and error (Playing and Exploring)</p>	<p>Explore the world around them and raise their own questions</p> <p>Experience different types of science enquiries, including practical activities.</p> <p>Begin to recognise different ways in which they might answer scientific questions</p>	<p>Raise their own relevant questions about the world around them.</p> <p>Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions.</p> <p>Should be given a range of scientific experiences including different types of enquiries to answer questions.</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>Use their scientific experiences to explore and raise different kinds of questions.</p> <p>Select and plan the most appropriate type of scientific enquiry to use to answer questions.</p>			
	Key Vocabulary:	question, answer,	+ explore, prediction, equipment, biology, chemistry, physics	+ enquiry, comparative, fair tests, relevant questions, scientific enquiry	+ plan, variables			



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	DO	<p>Observing/obtaining evidence</p>	<p>Closely observes what animals, people and vehicles do (The World: 8-20 months)</p> <p>Use senses to explore the world around them (Playing and Exploring)</p> <p>Choose the resources they need for their chosen activities (ELG: Self Confidence & Self Awareness)</p> <p>Handle equipment and tools effectively (ELG: Moving & Handling)</p> <p>Materials can be changed in a variety of ways which may alter their look or feel (CoT1,2)</p> <p>What is in my world? (PL3)</p>	<p>Observe closely using simple equipment. With help, observe changes over time.</p> <p>With guidance they should begin to notice patterns and relationships</p> <p>Use simple measurements and equipment (e.g. egg timers, magnifying glasses) to gather data</p>	<p>Make systematic and careful observations. Help to make decisions about what to measure, how long for and what equipment to use.</p> <p>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</p> <p>Take accurate measurements using standard units. Learn to use a range of new equipment (such as thermometers and data loggers) appropriately.</p>	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate</p> <p>Make their own decisions about what observations to make, what measurements to use and how long to make them for.</p> <p>Look for different casual relationships in their data and identify evidence that refutes or supports their ideas.</p>
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		Performing simple tests	Find ways to solve problems/ find new ways to do things/ test their ideas (Creating & Thinking Critically)	Perform simple tests with support	Perform simple tests with guidance	Perform simple tests independently.
		Identifying and classifying	Develop ideas of grouping, sequences, cause and effect (Creating and Thinking Critically) Know about similarities and differences in relation to places, objects, materials and living things (ELG: The World)	Use simple features to compare objects, materials and living things and with help, decide how to sort and group them.	Talk about criteria for grouping, sorting and classifying; use simple keys	Use and develop keys and other information records to identify, classify and describe living things and material, and identify patterns that might be found in the natural environment.
		Using secondary sources	Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world (The World: 30-50 months)	Ask people questions and use simple secondary sources to find answers	Recognise when and how secondary sources will help them to answer questions that cannot be answered through practical investigations.	Recognise which secondary sources will be the most useful to research their ideas and begin to separate opinion from fact
		Scientific Equipment	Magnifying glass, hand lenses, egg timer, Non-fiction books, iPads	As Reception + ruler, tape measure, metre sticks, room thermometer, thermometers	As KS1+ Data loggers	AS LKS2+ Protractors



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		Key Vocabulary:	look closely, sort	observe, observing, identify, classify, group	differences, similarities, changes, careful observation	accuracy, precision, repeat readings
		Recording	<ul style="list-style-type: none"> - How can we make change happen? (CoT3) -Make links and notice patterns in their experience (Creating and Thinking Critically) -Create simple representations of events, people and objects (Being Imaginative: 40-60+months) -Develop their own narratives and explanations by connecting ideas or events (ELG: Speaking) -Builds up vocabulary that reflects the breadth of their experience (Understanding: 30-50 months) 	<p>Record simple data</p> <p>With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language.</p>	<p>Collect and record data from their own observations and measurements in a variety of ways; diagrams, notes, tables, bar charts and help to make decisions about how to analyse data.</p>	<p>Choose the most appropriate equipment to make measurements with, use with increasing precision and explain how to use it accurately. Take repeated measurements where appropriate.</p> <p>Decide how to record data and results of increasing complexity, from a choice of familiar approaches: diagrams, labels, classification keys, tables, bar charts and graphs.</p>



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		Maths progression: Frequency chart, counting Continue with all previously taught methods + Venn diagrams, labels, simple tables	Continue with all previously taught methods + Tally charts, picture graphs, pictograms, Carroll diagrams	Continue with all previously taught methods + Introduce bar graphs	Continue with all taught methods Introduce time graphs, classification keys, line graphs	Choose and explain method used Introduce finding percentages, use decimals	Choose and explain method used Use 'mean' as an average and decide when it is appropriate to use. Introduce Scatter graphs, pie charts and ratios.
		Key Vocabulary: describe, group, record	evidence, data, patterns, diagram, chart, map,	gather, record, classify, present, systematic, accurate measurements	quantitative measurements,		



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REVIEW	Concluding	<p>-Answer how and why questions about their experiences (ELG: Understanding)</p> <p>-Make observations of animals and plants and explain why some things occur, and talk about changes (ELG: The World)</p>	Talk about what they have found out and how they found it out.	<p>With help, pupils should look for changes in patterns, similarities and differences in their data in order to answer questions and draw simple conclusions.</p> <p>Use 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, displays or presentations of results and conclusions.</p>	Use scientific language to discuss, communicate and justify their ideas. Use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degree of trust in results.
	Key Vocabulary:		compare, contrast, describe, prediction	construct, interpret, evidence, conclusion	conclusion, causal relationship, explanations, degree of trust, patterns
	Evaluating	N/A	Use their observations and ideas to suggest answers to questions.	With support they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.	<p>Identify scientific evidence that can be used to refute or support ideas and arguments.</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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		Key Vocabulary:	What have you found out? explain, how, why		improve	support, refute, arguments
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