



Working Scientifically Progression

Asking questions

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	<p>Explores how things work</p> <p>Talk about what they see using a wide range of vocabulary</p>	<p>Explores how things work</p> <p>Talk about what they see using a wide range of vocabulary.</p> <p>Explore the natural world around them</p>	Raise their own simple questions about the world around them	Raise their own simple questions about the world around them	Raise their own relevant questions about the world around them	Raise their own relevant questions about the world around them	Use their science experiences to explore ideas and raise different types of questions	Use their science experiences to explore ideas and raise different types of questions
Do			<p>Experience different types of science enquiry</p> <p>Begin to recognise different ways in which they might answer scientific questions</p>	<p>Experience different types of science enquiry</p> <p>Begin to recognise different ways in which they might answer scientific questions</p>	<p>Experience different types of science enquiry</p> <p>Be given a range of scientific experiences</p> <p>Start to make their own decisions about the most appropriate type of scientific enquiry to answer questions</p>	<p>Experience different types of science enquiry</p> <p>Be given a range of scientific experiences</p> <p>Start to make their own decisions about the most appropriate type of scientific enquiry to answer questions</p>	<p>Select and carry out the most appropriate type of scientific enquiry to use to answer scientific questions</p>	<p>Select and carry out the most appropriate type of scientific enquiry to use to answer scientific questions</p>
Review			<p>Use their observations, ideas and data to suggest answers to questions</p>	<p>Use their observations, ideas and data to suggest answers to questions</p>	<p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to answer questions</p> <p>With support, identify new questions arising from the data</p>	<p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to answer questions</p> <p>With support, identify new questions arising from the data</p>	<p>Identify scientific evidence to support or refute ideas or arguments</p> <p>Identify new questions arising from the data</p>	<p>Identify scientific evidence to support or refute ideas or arguments</p> <p>Identify new questions arising from the data</p>

Observing over time

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	<p>Explores how things work</p> <p>Talk about what they see using a wide range of vocabulary</p>	<p>Explores how things work</p> <p>Talk about what they see using a wide range of vocabulary</p> <p>Explore the natural world around them</p>	<p>Ask questions about how and why things change</p> <p>Ask questions about how and why things are similar or different</p> <p>With help identify changes to observe and measure and suggest how to do it</p>	<p>Ask questions about how and why things change</p> <p>Ask questions about how and why things are similar or different</p> <p>With help identify changes to observe and measure and suggest how to do it</p>	<p>Talk about things changing and decide when questions can be answered by observing over time</p> <p>Decide what observations to make, how often and what equipment to use</p>	<p>Talk about things changing and decide when questions can be answered by observing over time</p> <p>Decide what observations to make, how often and what equipment to use</p>	<p>Recognise when observing changes over time will help to answer questions</p> <p>Decide how detailed observations need to be and what equipment to use to make measurements as accurate as possible</p>	<p>Recognise when observing changes over time will help to answer questions</p> <p>Decide how detailed observations need to be and what equipment to use to make measurements as accurate as possible</p>
Do			<p>Use standard or non-standard units and simple equipment to record changes</p> <p>Make comparisons between simple features of objects, materials or living things</p> <p>Record observations in words or pictures or simple tables</p>	<p>Use standard or non-standard units and simple equipment to record changes</p> <p>Make comparisons between simple features of objects, materials or living things</p> <p>Record observations in words or pictures or simple tables</p>	<p>Use a range of equipment to collect data using standard measures</p> <p>Make records using tables and bar charts</p> <p>Begin to use and interpret data collected through data loggers</p>	<p>Use a range of equipment to collect data using standard measures</p> <p>Make records using tables and bar charts</p> <p>Begin to use and interpret data collected through data loggers</p>	<p>Use equipment accurately</p> <p>Record data appropriately</p> <p>Present data in line graphs</p> <p>Interpret changes in the data</p> <p>Recognise the effect of changing the time and number of observations</p>	<p>Use equipment accurately</p> <p>Record data appropriately</p> <p>Present data in line graphs</p> <p>Interpret changes in the data</p> <p>Recognise the effect of changing the time and number of observations</p>
Review			<p>Identify simple changes and talk about them</p> <p>Sequence the changes</p> <p>Begin to use scientific language to talk about the changes</p> <p>Say whether the change was as expected</p>	<p>Identify simple changes and talk about them</p> <p>Sequence the changes</p> <p>Begin to use scientific language to talk about the changes</p> <p>Say whether the change was as expected</p>	<p>Talk about some changes using scientific language</p> <p>Draw simple conclusions from the changes observed</p> <p>Suggest improvements to the ways observed</p>	<p>Talk about some changes using scientific language</p> <p>Draw simple conclusions from the changes observed</p> <p>Suggest improvements to the ways observed</p>	<p>Talk about and explain changes using scientific knowledge and understanding</p> <p>Draw valid conclusions from data about changes</p> <p>Recognise the significance of things changing over time</p> <p>Evaluate how well they observed over time</p>	<p>Talk about and explain changes using scientific knowledge and understanding</p> <p>Draw valid conclusions from data about changes</p> <p>Recognise the significance of things changing over time</p> <p>Evaluate how well they observed over time</p>

Identify, classify and grouping

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	Explores how things work	Explores how things work	Ask questions about how things fit into different groups	Ask questions about how things fit into different groups	Talk about criteria to use to identify, classify and group things	Talk about criteria to use to identify, classify and group things	Recognise when identifying, classifying and grouping will be helpful to answer questions	Recognise when identifying, classifying and grouping will be helpful to answer questions
	Uses all their senses in hands on exploration of natural materials	Uses all their senses in hands on exploration of natural materials	Decide what to observe to identify, classify or group	Decide what to observe to identify, classify or group	Decide whether equipment is needed to identify and classify things	Decide whether equipment is needed to identify and classify things	Decide what equipment, tests and secondary sources of information to use to identify, classify and group things	Decide what equipment, tests and secondary sources of information to use to identify, classify and group things
	Talk about what they see using a wide range of vocabulary	Talk about what they see using a wide range of vocabulary. Explore the natural world around them			Talk about things that can be grouped and decide when questions can be answered by sorting and classifying	Talk about things that can be grouped and decide when questions can be answered by sorting and classifying		
Do		Describe what they see, hear and feel whilst outside	Classify or group objects by observable and behavioural features	Classify or group objects by observable and behavioural features	Carry out simple tests to classify and group things according to properties or behaviour	Carry out simple tests to classify and group things according to properties or behaviour	Use a series of tests or secondary sources to sort and classify things	Use a series of tests or secondary sources to sort and classify things
			Record my grouping in different ways such as a Venn, table, sorting circles or labelled groups	Record my grouping in different ways such as a Venn, table, sorting circles or labelled groups	Use Carroll diagrams, Venn diagrams and more complex tables to group things	Use Carroll diagrams, Venn diagrams and more complex tables to group things	Make own keys and branching databases	Make own keys and branching databases
					Use simple keys and branching databases to identify things	Use simple keys and branching databases to identify things	Use more than one piece of scientific evidence to identify, classify and group things	Use more than one piece of scientific evidence to identify, classify and group things
Review			Identify similarities and differences and talk about them	Identify similarities and differences and talk about them	Talk about the similarities and differences identified using some scientific language	Talk about the similarities and differences identified using some scientific language	Use equipment accurately to collect observations	Use equipment accurately to collect observations
			Begin to use scientific language to talk about how things are similar or different	Begin to use scientific language to talk about how things are similar or different	Draw simple conclusions about things that have been classified and grouped	Draw simple conclusions about things that have been classified and grouped	Use equipment accurately to collect observations	Use equipment accurately to collect observations
			Use my records to help identify, classify and group other things	Use my records to help identify, classify and group other things	Suggest improvements to the way they classified and grouped things	Suggest improvements to the way they classified and grouped things	Draw valid conclusions when sorting and classifying	Draw valid conclusions when sorting and classifying
						Recognise the significance of sorting and classifying	Recognise the significance of sorting and classifying	
						Evaluate how well the keys have worked	Evaluate how well the keys have worked	

Pattern seeking

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	<p>Explores how things work</p> <p>Uses all their senses in hands on exploration of natural materials</p> <p>Talk about what they see using a wide range of vocabulary</p>	<p>Explores how things work</p> <p>Uses all their senses in hands on exploration of natural materials</p> <p>Talk about what they see using a wide range of vocabulary</p> <p>Explore the natural world around them</p>	<p>Ask questions about why and how things are linked</p> <p>With help, decide what patterns to observe and measure and suggest how to do it.</p>	<p>Ask questions about why and how things are linked</p> <p>With help, decide what patterns to observe and measure and suggest how to do it.</p>	<p>Talk about where patterns may be found and decide when questions can be answered by pattern seeking</p> <p>Decide on which sets of data to collect, what observations to make and what equipment to use</p>	<p>Talk about where patterns may be found and decide when questions can be answered by pattern seeking</p> <p>Decide on which sets of data to collect, what observations to make and what equipment to use</p>	<p>Recognise when variables cannot be controlled and when pattern seeking will help to answer questions</p> <p>Decide how detailed the data needs to be and which equipment to use to make measurements as accurate as possible</p>	<p>Recognise when variables cannot be controlled and when pattern seeking will help to answer questions</p> <p>Decide how detailed the data needs to be and which equipment to use to make measurements as accurate as possible</p>
Do			<p>Use standard or non-standard units and simple equipment to record events that might be related</p> <p>Record in words or pictures or in simple prepared formats such as tables or tally charts</p>	<p>Use standard or non-standard units and simple equipment to record events that might be related</p> <p>Record in words or pictures or in simple prepared formats such as tables or tally charts</p>	<p>Use a range of equipment to collect data using standard measures</p> <p>Make records using tables or bar charts</p> <p>Begin to use and interpret data collected through data loggers</p>	<p>Use a range of equipment to collect data using standard measures</p> <p>Make records using tables or bar charts</p> <p>Begin to use and interpret data collected through data loggers</p>	<p>Record data appropriately and accurately</p> <p>Present data in appropriate graphs, tables or charts</p> <p>Recognise patterns in results</p> <p>Recognise the effect of sample size on reliability</p>	<p>Record data appropriately and accurately</p> <p>Present data in appropriate graphs, tables or charts</p> <p>Recognise patterns in results</p> <p>Recognise the effect of sample size on reliability</p>
Review			<p>Identify simple patterns and talk about them</p> <p>Make links between two sets of observations</p> <p>Begin to use scientific language to talk about patterns</p> <p>Talk about whether the pattern was as expected</p>	<p>Identify simple patterns and talk about them</p> <p>Make links between two sets of observations</p> <p>Begin to use scientific language to talk about patterns</p> <p>Talk about whether the pattern was as expected</p>	<p>Talk about patterns using some scientific language</p> <p>Draw conclusions about simple patterns between two sets of data</p> <p>Suggest improvements to the way to look for patterns</p>	<p>Talk about patterns using some scientific language</p> <p>Draw conclusions about simple patterns between two sets of data</p> <p>Suggest improvements to the way to look for patterns</p>	<p>Talk about and explain cause and effect patterns using scientific knowledge and understanding</p> <p>Draw valid conclusions from data about patterns and recognise their limitations</p> <p>Recognise the significance of relationships between sets of data</p> <p>Evaluate how well they looked for patterns</p>	<p>Talk about and explain cause and effect patterns using scientific knowledge and understanding</p> <p>Draw valid conclusions from data about patterns and recognise their limitations</p> <p>Recognise the significance of relationships between sets of data</p> <p>Evaluate how well they looked for patterns</p>

Research using secondary sources

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan			<p>Ask questions about observable features of things and the way they work or behave</p> <p>With help make suggestions about how to find things out</p>	<p>Ask questions about observable features of things and the way they work or behave</p> <p>With help make suggestions about how to find things out</p>	<p>Talk about observable features of things and the way they work and behave and decide when questions can be answered by research using secondary sources</p>	<p>Talk about observable features of things and the way they work and behave and decide when questions can be answered by research using secondary sources</p>	<p>Recognise when research using secondary sources will help to answer questions</p> <p>Decide what sources of information might answer questions</p>	<p>Recognise when research using secondary sources will help to answer questions</p> <p>Decide what sources of information might answer questions</p>
Do			<p>Use simple books and electronic media to find things out</p> <p>Ask questions to find out what people do and how things work</p> <p>Record in words and pictures what you find out</p>	<p>Use simple books and electronic media to find things out</p> <p>Ask questions to find out what people do and how things work</p> <p>Record in words and pictures what you find out</p>	<p>Use information sources to find the information needed</p> <p>Use data from other pupils</p> <p>Record what they found out in their own words</p> <p>Present information in different ways</p>	<p>Use information sources to find the information needed</p> <p>Use data from other pupils</p> <p>Record what they found out in their own words</p> <p>Present information in different ways</p>	<p>Use relevant information and data from a range of secondary sources</p> <p>Recognise how data has been obtained</p> <p>Start to notice when information or data is biased or based on opinions rather than facts</p> <p>Present findings in suitable formats</p>	<p>Use relevant information and data from a range of secondary sources</p> <p>Recognise how data has been obtained</p> <p>Start to notice when information or data is biased or based on opinions rather than facts</p> <p>Present findings in suitable formats</p>
Review			<p>Begin to use scientific language to talk about what you have found out</p> <p>Talk about whether the information source was useful</p> <p>Give an opinion about some things you found out</p> <p>Interpret and talk about data</p>	<p>Begin to use scientific language to talk about what you have found out</p> <p>Talk about whether the information source was useful</p> <p>Give an opinion about some things you found out</p> <p>Interpret and talk about data</p>	<p>Talk about what the information and data means using some scientific language</p> <p>Draw conclusions from what they found out from different sources</p> <p>Suggest ways to improve how to find out and use information</p>	<p>Talk about what the information and data means using some scientific language</p> <p>Draw conclusions from what they found out from different sources</p> <p>Suggest ways to improve how to find out and use information</p>	<p>Talk about and explain research using scientific knowledge and understanding</p> <p>Draw valid conclusions from own research</p> <p>Evaluate how well their research has answered the question</p> <p>Recognise that some scientific questions may not have been answered definitively</p> <p>Draw valid conclusions based on the data</p>	<p>Talk about and explain research using scientific knowledge and understanding</p> <p>Draw valid conclusions from own research</p> <p>Evaluate how well their research has answered the question</p> <p>Recognise that some scientific questions may not have been answered definitively</p> <p>Draw valid conclusions based on the data</p>

Comparative and fair testing

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan			<p>Ask questions about why and how</p> <p>Perform simple comparative and fair tests</p> <p>Predict expected outcomes</p> <p>Discuss reasons for expected outcomes</p>	<p>Ask questions about why and how</p> <p>Perform simple comparative and fair tests</p> <p>Predict expected outcomes</p> <p>Discuss reasons for expected outcomes</p>	<p>Talk about links between cause and effect and with help pose a fair test question</p> <p>Participate and help to plan comparative and fair tests (what are we changing and keeping the same?)</p> <p>Decide what data to collect</p> <p>Decide what equipment to use and how to make observations</p> <p>Predict their expected outcome using some reasoning</p>	<p>Talk about links between cause and effect and with help pose a fair test question</p> <p>Participate and help to plan comparative and fair tests (what are we changing and keeping the same?)</p> <p>Decide what data to collect</p> <p>Decide what equipment to use and how to make observations</p> <p>Predict their expected outcome using some reasoning</p>	<p>Recognise when variables need to be controlled and when a fair test is the best way to answer a question</p> <p>Plan a fair test selecting the most suitable variables to measure, change and keep the same (constant variables)</p> <p>Decide what equipment to use to make measurements as accurate as possible</p> <p>Predict their expected outcome using specific reasoning</p>	<p>Recognise when variables need to be controlled and when a fair test is the best way to answer a question</p> <p>Plan a fair test selecting the most suitable variables to measure, change and keep the same (constant variables)</p> <p>Decide what equipment to use to make measurements as accurate as possible</p> <p>Predict their expected outcome using specific reasoning</p>
Do			<p>Use non-standard units and simple equipment to record data</p> <p>Record in words or pictures or in simple prepared formats such as tables or tally charts</p>	<p>Use non-standard units and simple equipment to record data</p> <p>Record in words or pictures or in simple prepared formats such as tables or tally charts</p>	<p>Use a range of equipment to collect data using standard measures</p> <p>Make records using tables, bar charts, drawings, labelled diagrams and keys</p> <p>Begin to use and interpret data collected through data loggers</p>	<p>Use a range of equipment to collect data using standard measures</p> <p>Make records using tables, bar charts, drawings, labelled diagrams and keys</p> <p>Begin to use and interpret data collected through data loggers</p>	<p>Use equipment accurately to collect observations</p> <p>Record data appropriately and accurately</p> <p>Present data using appropriate graphs, tables or charts</p> <p>Identify causal relationships</p>	<p>Use equipment accurately to collect observations</p> <p>Record data appropriately and accurately</p> <p>Present data using appropriate graphs, tables or charts</p> <p>Identify causal relationships</p>
Review			<p>Begin to use simple scientific language to identify and describe simple causal relationships</p> <p>Communicate their findings in a range of ways</p>	<p>Begin to use simple scientific language to identify and describe simple causal relationships</p> <p>Communicate their findings in a range of ways</p>	<p>Talk about and explain, simple causal relationships using some scientific language</p> <p>Draw simple conclusions from comparative or fair tests</p> <p>Communicate findings appropriately for</p>	<p>Talk about and explain, simple causal relationships using some scientific language</p> <p>Draw simple conclusions from comparative or fair tests</p> <p>Communicate findings appropriately for</p>	<p>Recognise the significance of the results of tests</p> <p>Talk about and explain causal relationships using scientific knowledge and understanding</p>	<p>Recognise the significance of the results of tests</p> <p>Talk about and explain causal relationships using scientific knowledge and understanding</p>

			<p>With help say if their test was fair</p> <p>Say if the relationship was as expected</p>	<p>With help say if their test was fair</p> <p>Say if the relationship was as expected</p>	<p>different audiences, including oral and written explanations, displays or presentations</p> <p>Suggest ways to improve comparative or fair tests</p>	<p>different audiences, including oral and written explanations, displays or presentations</p> <p>Suggest ways to improve comparative or fair tests</p>	<p>Communicate findings and justify their scientific ideas appropriately for different audiences, including oral and written explanations, displays or presentations</p> <p>Evaluate the effectiveness of fair testing, recognising variables that were difficult to control.</p>	<p>Communicate findings and justify their scientific ideas appropriately for different audiences, including oral and written explanations, displays or presentations</p> <p>Evaluate the effectiveness of fair testing, recognising variables that were difficult to control.</p>
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