

Progression of Skills in Working Scientifically in Science

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Testing	<p>Perform simple tests (Year 1 focus) e.g.</p> <ul style="list-style-type: none"> Which materials keep things warmest? <p>Know whether the test has been successful and can say what has been learned.</p>	<p>Perform simple comparative and fair tests (Yr2 focus) e.g.</p> <ul style="list-style-type: none"> Finding out how seeds grow best 	<p>Set up simple practical enquiries, comparative and fair tests e.g.</p> <ul style="list-style-type: none"> To see which type of soil is most suitable when growing two similar plants. Set up a fair test with different variables e.g. the best conditions for a plant to grow. <p>Can explain to a partner why a test is a fair one.</p>	<p>Set up simple practical enquiries, comparative and fair tests e.g.</p> <ul style="list-style-type: none"> Which of two instruments make the highest or lowest sound and does a glass of ice weigh more than a glass of water? Set up a fair test with more than one variable e.g. using different materials to cut out sound. <p>Can explain to others why a test is fair.</p>	<p>Set up an investigation when it is appropriate e.g.</p> <ul style="list-style-type: none"> Finding out which materials dissolve or not. <p>Set up a fair test when needed e.g.</p> <ul style="list-style-type: none"> Which surfaces create most friction? <p>Set up an enquiry based investigation e.g.</p> <ul style="list-style-type: none"> Find out what adults/ children can do now that they couldn't do when they were babies. <p>Know what variables are in a given enquiry and can isolate each one when investigating e.g.</p> <ul style="list-style-type: none"> Finding out how effective parachutes are when made with different materials. 	<p>Know which type of investigation is needed to suit a particular scientific enquiry e.g.</p> <ul style="list-style-type: none"> Looking at the relationship between pulse and exercise. <p>Set up a fair test when needed e.g.</p> <ul style="list-style-type: none"> Does light travel in straight lines? <p>Know how to set up an enquiry based investigation.</p>

Scientific questioning	<p>Ask simple questions and recognise that they can be answered in different ways e.g.</p> <ul style="list-style-type: none"> • Why are flowers different colours? • Why do some animals eat meat and others do not? 	<p>Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum e.g.</p> <ul style="list-style-type: none"> • Why do some trees lose their leaves in autumn and others do not? • How long are the roots of tall trees? • Why do some animals have underground habitats? 	<p>Ask relevant questions and use different types of scientific enquiries to answer them e.g.</p> <ul style="list-style-type: none"> • Why does the moon appear as different shapes in the night sky? • Why do shadows change during the day? • Where does a fossil come from? 	<p>Ask relevant questions and use different types of scientific enquiries to answer them e.g.</p> <ul style="list-style-type: none"> • Why are steam and ice the same thing? • Why is the liver important in the digestive system? 	<p>Plan different types of scientific enquiries to answer given questions.</p>	<p>Plan different types of scientific enquiries to answer their own or others' questions.</p>
Measuring	<p>Use simple equipment to observe closely.</p>	<p>Use simple equipment such as thermometers and rain gauges to observe closely changes over time.</p>	<p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p>	<p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p>	<p>Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p>	<p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (Y6 focus including capacity, mass, ratio and proportion).</p>
Gathering evidence	<p>Gather and record data to help in answering questions.</p>	<p>Gather and record data to help in answering questions including from secondary sources of information using drawings, labelled diagrams, block graphs or tables.</p>	<p>Gather, record, classify and present data in a variety of ways to help in answering questions drawings, labelled diagrams, keys and child constructed bar charts and tables.</p>	<p>Gather, record, classify and present data in a variety of ways to help in answering questions drawings, labelled diagrams, keys and child constructed bar charts and tables.</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>

Communicating findings	Make a simple written explanation about what has been learned from an investigation or what conclusions have been found.	Communicate his/her Ideas, what he/she does and what he/she finds out in a variety of ways e.g. simple written reports or write ups.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Report and present 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.	Report and present 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.
Classifying	Identify and classify e.g. Mammals and birds.	Identify, group and classify according to a given criteria e.g. Deciduous and coniferous trees e.g. using a Venn Diagram	Group information according to common factors e.g. plants that grow in woodlands/plants that grow in gardens. e.g. Venn Diagrams with bisecting sets or Carroll Diagrams	Group information according to common factors e.g. materials that make good conductors or insulators. e.g. Venn Diagrams with bisecting sets or Carroll Diagrams	Group and classify things and recognise patterns using appropriate ways of presenting e.g. classification keys.	Group and classify things and recognise patterns using appropriate ways of presenting e.g. classification keys.
Scientific research			Use research to find out a range of things e.g. <ul style="list-style-type: none"> How reflection can help us see things that are around the corner. What are the main differences between sedimentary and igneous rocks? 	Use research to find out a range of things e.g. <ul style="list-style-type: none"> Which materials make effective conductors and insulators of electricity? How much time it takes to digest our food? 	Find things out using a wide range of secondary sources of information.	Find things out using a wide range of secondary sources of information.
Concluding and questioning	Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Use results to draw conclusions. Is evaluative when explaining findings from scientific enquiries and is clear about what has happened in recent enquiries and can relate this to other enquiries where appropriate.	Use results to draw conclusions. Is evaluative when explaining findings from scientific enquiries and is clear about what has happened in recent enquiries and can relate this to other enquiries where appropriate.	
Using scientific evidence		Use straightforward scientific evidence to answer questions or to support his/her findings	Use straight forward scientific evidence to answer questions or to support his/her findings	Identify scientific evidence that has been used to support or refute ideas or arguments.	Identify scientific evidence that has been used to support or refute ideas or arguments.	