








Progression of Working Scientifically

	Asking Questions and Making Predictions	Setting Up Tests	Observing and Measuring	Recording Data	Interpreting & Communicating Results	Evaluating
	 					
LKS2 (Y3 & Y4)	<p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <ul style="list-style-type: none"> • The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. • The children answer questions posed by the teacher. • Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question. 	<p>Setting up simple practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> • The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. • They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking 	<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> <ul style="list-style-type: none"> • The children make systematic and careful observations. • They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.. 	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <ul style="list-style-type: none"> • The children sometimes decide how to record and present evidence. They record their observation. They record their measurements. They record classifications. • Children are supported to present the same data in different ways in order to help with answering the question. 	<p>Using straightforward scientific evidence to answer questions or to support their findings. Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <ul style="list-style-type: none"> • Children answer their own and others' questions based on observations they have made; measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence • Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. 	<p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <ul style="list-style-type: none"> • They draw conclusions based on their evidence and current subject knowledge. • They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.

<p>Planning different types of scientific enquiries to answer questions and make predictions including recognising and controlling variables where necessary</p> <ul style="list-style-type: none"> • Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. • Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.. 	<p>Setting up a range of practical scientific enquiries to answer their own questions, including fair and comparative tests and observations over time</p> <ul style="list-style-type: none"> • The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample. 	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <ul style="list-style-type: none"> • The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. • During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value). 	<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <ul style="list-style-type: none"> • The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. • Children present the same data in different ways in order to help with answering the question 	<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> <ul style="list-style-type: none"> • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. • They talk about how their scientific ideas change due to new evidence that they have gathered. • They talk about how new discoveries change scientific understanding. 	<p>Using test results to make scientific conclusions based on evidence, then make predictions to set up further comparative and fair tests</p> <ul style="list-style-type: none"> • Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests. • They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used. • They identify any limitations that reduce the trust they have in their data.
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