

## Progression for Working Scientifically

Big Ideas	Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	KS3
Question	Make comments about what they have heard and ask questions to clarify their understanding (Listening, Attention and Understanding ELG)	Ask simple questions	Ask simple questions and recognising that they can be answered in different ways	Ask relevant questions and begin to use different types of scientific enquiries to answer them	Ask relevant questions and use different types of scientific enquiries to answer them	Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience  Identify further questions arising from their result.
Predict	Offer explanations for why things might happen (Speaking ELG) Make predictions, think of ideas (Characteristics of effective learning)	Make a simple prediction	Make a simple prediction and discuss why?	Make predictions from life experiences.	Make predictions from prior learning.	Use test results to make predictions to set up further comparative and fair tests	Use test results to make predictions to set up further comparative and fair tests	Make predictions using scientific knowledge and understanding
Investigate	Explore the natural world around them, making observations and drawing pictures of animals and plants (The Natural World ELG)  Find ways to solve problems / find new ways to do things / test their ideas Creating & Thinking Critically Learn by trial and error, testing their theories , find new ways to do things, uses senses to explore the world around them (Characteristics of effective learning)	Begin to perform simple tests	Perform simple tests	Set up simple practical enquiries, comparative and fair tests	Set up simple practical enquiries, comparative and fair tests			Select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate  Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety Evaluate the reliability of methods and suggest possible improvements Evaluate risks Pay attention to objectivity and concern for accuracy, precision,

								repeatability and reproducibility.
Observe	Explore the natural world around them, making observations and drawing pictures of animals and plants Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.(The Natural World ELG)	Begin to observe closely, using simple equipment	Observe closely, using simple equipment	Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Apply sampling techniques Apply mathematical concepts and calculate results Use and derive simple equations and carry out appropriate calculations Undertake basic data analysis including simple statistical techniques
Record	Explore the natural world around them, making observations and drawing pictures of animals and plants (The Natural World ELG)	Begin to gather and record simple data to help in answering questions.	Gather and record data to help in answering questions.	Begin to gather, record, classify and present data in a variety of ways to help in answering questions  Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Gather, record, classify and present data in a variety of ways to help in answering questions  Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature Make and record observations and measurements using a range of methods for different investigations Present observations and data using appropriate methods, including tables and graphs
Interpret	Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (The Natural World ELG)	Begin to use their observations and ideas to suggest answers to questions	Use their observations and ideas to answers questions	Report on findings from enquiries, including oral and written explanations of results and conclusions.  Begin to use results to draw simple conclusions, make predictions for new values, suggest	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 and causal relationships, 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  Begin to identify scientific evidence that has been used to support or refute ideas or	Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions  Present reasoned explanations, including explaining data in relation to predictions and

				improvements and raise further questions  Begin to identify differences, similarities or changes related to simple scientific ideas and processes  Begin to use straightforward scientific evidence to answer questions or to support their findings	improvements and raise further questions  Identify differences, similarities or changes related to simple scientific ideas and processes  Use straightforward scientific evidence to answer questions or to support their findings	ideas or arguments.	arguments.	hypotheses Evaluate data, showing awareness of potential sources of random and systematic error.
--	--	--	--	--	--	---------------------	------------	--