Duddon St. Peter's School **Progression in Scientific Enquiry Skills**

Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of relevant scientific content.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask questions	Demonstrate curiosity about the world around them.	Ask simple questions stimulated by their exploration of their world.	Ask simple questions about their experiences and observations and with support use these observations to suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways.	Within a group, suggest relevant questions that can be explored further using different types of scientific enquiry.	Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment.	Refine a scientific question so that it can be investigated, choosing an appropriate type of scientific enquiry to provide the best evidence.	Recognise scientific questions which do not yet have definitive answers and use a range of scientific enquiries to explore possible answers.

Make predictions	With support or prompting, talk about what they think might happen based on their own experiences.	Respond to suggestions to connect what has been observed with possible further actions or observations.	Use their observations and ideas to make predictions. Use understanding of what has been observed or own experience to predict outcomes of further actions or observations.	Use straightforward scientific evidence to make predictions. With support, use results, observations or own experience to prompt new questions and predictions for a further test.	Use straightforward scientific evidence to make further predictions. Use results to make predictions for new values and raise further questions.	Recognise when scientific evidence supports an idea or not and use this to support predictions. Use test results to prompt new questions and make predictions for setting up further tests.	Identify scientific evidence that has been used to support or refute ideas or arguments and use this to support predictions. Use test results to make predictions for setting up further comparative and fair tests.

Decide how to carry out an enquiry.	Respond to prompts to say what happened to objects, living things or events	Perform simple tests to explore a question or idea suggested to them, with support.	Identify things to measure or observe that are relevant to the questions or ideas they are investigating using a simple test. Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating.	Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating, with support.	Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating. Identify one or more control variables from those provided when conducting a fair test.	Plan enquiries, deciding when it is appropriate to carry out a fair test or another type of practical enquiry from a range suggested. Identify one or more control variables in investigations when conducting a fair test.	Recognise significant variables in investigations, selecting the most suitable to investigate. Controlling variables where appropriate. Recognise which type of practical enquiry is most appropriate to the question or idea being investigated, before planning and carrying out the enquiry.

Take measurements	Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses.	Observe objects, living things, events and the world around them closely, using their senses and simple equipment. Make measurements using nonstandard units of measure.	Observe closely and use equipment provided for observation and measuring correctly. Make measurements using non-standard and standard units of measure.	Use a range of equipment for measuring and observing, including thermometers and data loggers. Take simple, accurate measurements and/or careful observations using whole number standard units relevant to questions or ideas under investigation.	Make systematic and careful observations of objects, living things and events. Choose from a range of provided, appropriate equipment for measuring and observing, including thermometers and data loggers. Take accurate measurements using more complex standard units and parts of units.	Take measurements using a range of scientific equipment with increasing accuracy and precision, identifying the ranges and intervals used. With support, recognise that some measurements and observations may need to be repeated.	Correctly choose and use appropriate equipment to support observation and data collection with increasing accuracy. Decide whether it is appropriate to repeat observations or measurements and explain how this impacts on data collection.

Record data	Talk to an adult about what has been found/found out.	Present evidence they have collected in simple templates provided for them to help in answering questions. Draw or photograph evidence and label with support.	Gather and record data in appropriate ways with increasing independence to help in answering questions.	Gather and present evidence and data using simple scientific language and vocabulary as writing, drawings, labelled diagrams and displays and through computing, keys, bar charts or tables (using ranges and intervals chosen for them), to help in answering questions.	Gather and present simple scientific data in a variety of ways as Year 3, including tables and bar charts where intervals and ranges are agreed through discussion, to help in answering questions.	Select appropriate ways of gathering and presenting scientific data through models, writing, drawings, displays, computing, tables or graphs (choosing appropriate ranges and intervals). Use correct scientific symbols where appropriate in recording.	Decide on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

Present data	Talk to an adult about what has been found/found out	Present findings in simple templates provided for them or orally. Draw or photograph evidence and label with support.	Report on and record findings as drawings, photographs, labelled diagrams, orally, as displays or in simple prepared tables or charts.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions with support/as a group. Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables with support/as a group.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	Present findings in written form, displays and other presentations including orally, explaining results and conclusions drawn from results. Identify causal relationships in reporting outcomes where appropriate.	Report and present findings from enquiries, including conclusions, causal relationships and explanations of results in oral and written form, such as displays and other presentations.
Answer questions using data	With support, explain why some things occur.	Respond to suggestions to connect what has been observed with possible further actions or observations.	Use understanding of what has been observed or own experience/ideas to answer questions.	Use straightforward scientific evidence and results of enquiries to answer questions.	Use results to answer questions	Use results to answer questions.	Use results to answer questions.

Draw conclusions	With support, talk about what they have found out or what they think might happen next/ change based on their own experiences.	Use their ideas to suggest answers to questions. Say what has changed when observing objects, living things or events.	Respond to suggestions to identify some evidence needed to answer a question.	Say whether what happened was what they expected, acknowledging any unexpected outcomes.	Identify and use straightforward scientific evidence to support and explain their findings.	Recognise when scientific evidence is for or against an argument.	Provide straightforward explanations for differences in repeated measurements or observations.
Evaluate their enquiry.				Use results of enquiries to consider whether they meet predictions and explain why.	Use results to suggest improvements.	Recognise that the test may need improvements to improve reliability.	Compare their results with others and give reasons why they may be different.