Science Curriculum - Disciplinary Knowledge (Working Scientifically) Progression

Year 1-6

Asking questions

Asking questions that can be answered using a scientific enquiry.



Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Ask simple questions	• Ask simple questions and recognise that they can be answered in different ways.	• Ask questions and understand there are different enquiry types they could use to answer them.	• Ask relevant questions and use different types of scientific enquiry to answer them.	• Ask scientific questions and begin to understand which questions would be best suited to each enquiry type.	• Ask relevant scientific questions and choose which enquiry type would be best suited to answer them.

Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Make simple predictions, with support.	• Make simple predictions based on a question.	• Make relevant predictions.	• Make predictions based on simple scientific knowledge.	• Make predictions based on scientific knowledge. .	• Make predictions based on scientific knowledge.

Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Verbally state what they are going to investigate.	• Identify what they will change and keep the same.	• Identify what they will change, observe and keep the same. • With support, set up simple practical enquiries	• Identify what they will change, observe or measure and keep the same. • Set up simple practical enquiries, comparative and fair tests.	• With support, plan different types of scientific enquiry. Where appropriate, identify the dependent, independent and controlled variables.	• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Make observations					
• Observe closely.	• Observe closely, using simple equipment.	• Begin to use scientific equipment to make observations.	• Make systematic and careful observations.	• Use a range of scientific equipment to make systematic and careful observations.	• Use a range of scientific equipment to make systematic and careful observations with increased complexity.
Take measurements					
• Carry out simple tests	• Perform simple tests	• Carry out tests and	• Take accurate	• Take accurate	• Take measurements,

using nonstandard measurements when appropriate.	using standard units when appropriate.	simple experiments and take measurements using standard units.	measurements using standard units, using a range of equipment, including thermometers and data loggers.	measurements using a range of scientific equipment. Start to take repeat readings when appropriate.	using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Recording data

Using tables, drawings and other means to note observations and measurements.



Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Gather and record simple data. • Sort objects and living things into groups based on simple properties.	• Gather and record data to help in answering questions. • Identifying and classifying.	• Gather and record data in different ways to help answer questions. • Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables.	• Gather, record and classify 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 and classify data with increasing complexity to help in answering questions. • Record data using scientific diagrams and labels, classification keys, tables, 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.

Interpreting and communicating results

Using information from the data to say what you found out.



Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Present findings					
• Explain what they found out to an adult or a partner.	• Talk about what they have found out and how they found it out. (non-statutory)	• Report on findings from enquiries, including oral and written explanations.	• 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. • Begin to identify 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 a degree of trust in results, in oral and written forms such as displays and other presentations.
Answer questions and make conclusions					
• Answer simple questions.	• Use their observations and ideas to suggest answers to questions.	• Make simple conclusions. • Use results, findings or observations to answer questions.	• Use straightforward scientific evidence to answer questions or to support their findings. • Use results to draw simple conclusions. • Begin to identify differences, similarities or changes related to simple ideas or processes.	• Use scientific evidence to answer questions. • Make conclusions based on scientific evidence and from their own testing and findings. • Identify differences, similarities or changes related to simple ideas or processes.	• Use scientific evidence to answer questions. • Make conclusions based on scientific evidence and from their own testing and findings. • Identify scientific evidence that has been used to support or refute ideas or arguments.

Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		• Suggest questions for further investigation.	• Begin to make predictions for new values, suggest improvements and raise further questions.	• Begin to make predictions for new values, suggest improvements and raise further questions.	• Use test results to make predictions to set up further comparative and fair tests. • Suggest investigation improvements including accuracy of results. • Provide some simple examples of how to extend the investigation.