



Science- 'Working Scientifically'

Skills Progression– Nov'21 (3rd revision)

'Skill Themes' developed from Association for Science Education (ASE)

	Skill Theme 1 Scientific Attitudes	Skill Theme 2 Experimental skills and investigations	Skill Theme 3 Analysis and evaluation	Skill Theme 4 Measurement
Early Years (Reception)	1a Show an interest in finding out about the world around them 1b Ask simple scientific questions about how things work 1c Understand that a scientist has to find out fairly how something works by testing it out	2a Find out how things work by observations and experimentation 2b Understand that a scientific test has to be careful and fair to get a useful result	3a Make observations about objects, events and animals and answer questions 3b Look at simple results from a scientific investigation and suggest what they mean	4a Sort objects into different groups or categories 4b Use simple physical measurements eg strides, foot steps, arm lengths 4c Understand that there are tools like tape measures, rulers, weighing scales etc which help us to measure how much
End of Key Stage 1 (Year 2)	1.1 Ask simple scientific questions showing curiosity about the world around them 1.2 Access simple research sources to find out more about a topic of choice 1.3 Apply their own knowledge of the world around them	2.1 Observe closely, using simple equipment including magnifiers and microscopes 2.2 Perform simple tests gathering and recording data to help answer questions 2.3 Present findings in a clear and effective way including labelling	3.1 Use their observations and ideas to suggest answers 3.2 Make simple conclusions from data in tables, graphs and charts 3.3 Identify and classify objects, materials and living things. 3.4 Make sensible predictions	4.1 Use and select from a range of equipment to take measurements 4.2 Know why accurate measurements are important 4.3 Be able to use standard and non-standard units 4.4 Be able to make observations over time.
End of Lower Key Stage 2 (Year 4)	1.4 Ask relevant questions 1.5 Suggest and use different types of scientific enquiries to find answers. 1.6 Access appropriate research sources to find out more about a topic of choice 1.7 Decide for themselves how to gather evidence to answer the question 1.8 Use accurate scientific language in discussion, and explain ideas to a peer	2.4 Set up simple practical enquiries following a plan they have helped develop 2.5 Make systematic and careful observations taking accurate measurements using a range of equipment, including thermometers and data loggers 2.6 Gathering, recording, classifying and presenting data in a variety of ways 2.7 Use concepts of 'fair test' and comparative test and begin to explain them 2.8 Present findings in a clear and effective way including labelling, diagrams, keys, bar charts, and tables – and explain the purpose of the presentation	3.5 Recording findings using simple scientific language, drawings, labelled 3.6 Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 3.7 Use results to draw simple conclusions 3.8 Make predictions for new values, and begin to justify them from scientific knowledge 3.9 Suggest improvements and raise further questions for investigation 3.10 Be able to recognise and explain patterns in results	4.5 Make systematic and careful observations 4.6 Taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 4.7 Be able to make and record detailed observations over time. 4.8 Evaluate and discuss which measuring equipment is best suited for an investigation 4.9 Be able to explain and justify which units of measurement are most appropriate for an investigation
When we leave the school. Year 6	1.9 Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 1.10 Access a range of appropriate research sources to find out more about a topic of choice 1.11 Be able to make informed decisions about the veracity of scientific websites 1.12 Use a range of accurate scientific language in discussion, and explain ideas to the class	2.9 Know why to take repeat readings when appropriate 2.10 Use and understand concepts of 'fair test' and comparative test, drawing on their prior knowledge 2.10 Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 2.11 Make choices about how to present findings and explain the reasons for the choice of presentation 2.12 Consistently present findings in a clear and effective way including labelling, diagrams, keys, bar charts, line graphs, and scientific tables	3.11 Use test results to make sensible predictions for related investigations 3.12 Suggest how to set up further comparative and fair tests to find out more 3.13 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 3.14 Identify scientific evidence that has been used to support or refute ideas or arguments 3.15 Recognise patterns in results, including data, and make informed explanations about them	4.10 Solve problems involving the calculation and conversion of units of measure, 4.11 Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa. 4.12 Take measurements, using a range of scientific equipment, with increasing accuracy and precision, 4.13 Understand why and when it is appropriate to take repeat readings, and how to use simple averages and concepts of 'best fit' to make sense of data.

Key subject specific skills vocabulary (Tier 3 vocab) to be embedded and revisited during the study of science in Little Melton: observe, equipment, identify, classify, group, record, data, compare, contrast, research, comparative test, fair test, systematic, labelled, conclusion, prediction, interpret, construct, variables, precision, evidence, refute, quantitative, qualitative

We believe these skills are important for life because:

- We want children to have the scientific knowledge to understand much of the world around them and the practical skills to enable them to investigate and explore to find out more
- We want children to be curious scientists, interested in the world around them, with a desire to question, investigate and reason scientifically, making links between different parts of the knowledge they have gained.