

The Nar Valley Federation of Church Academies: Progression of Skills in Science



Asking Questions and Planning Enquiries

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC: Ask simple questions and recognise that they can be answered in different ways NC: Perform simple tests; Identify and classify		NC: Ask relevant questions and use different types of scientific enquiries to answer them NC: Set up simple practical enquiries, comparative and fair tests		NC: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	
Can ask some simple questions to find out about the world around them and with teacher guidance, recognise that they can be answered using different types of enquiry.	Can ask simple questions to find out about the world around them and make simple suggestions about the different types of enquiry that could be used to collect evidence to answer a question.	Can recognise how scientific ideas and concepts can be turned into relevant questions that can be investigated and put forward their own ideas about how to find the answer to a scientific question using different types of enquiries.	Can turn existing scientific ideas into a question form that can be investigated and begin to plan different types of scientific enquiries.	Can form scientific questions for enquiry based on scientific ideas/concepts and recognise which can be investigated and those which are theoretical. Plan different types of enquiries to answer questions.	Can explore scientific ideas/concepts and form clear enquiry questions about scientific phenomena, recognising which can be investigated and those which are theoretical. Select and plan the most appropriate types of enquiry to answer questions.
Can plan a simple test guided by the teacher.	Can make a simple plan for a test within a framework provided by the teacher, e.g. using a planning frame or set of questions, focusing on a limited number of variables.	Can make a simple plan which identifies the basic features of the test, e.g. what is being changed, what is being measured and which variables are being controlled to keep the test fair.	Can decide on a clear plan to answer the question which identifies the key features of a fair test, e.g. what is being changed, what is being measured and which variables are being controlled to keep the test fair.	Can decide on an appropriate way to collect data to answer a question and with guidance, create a clear plan which identifies the independent, dependent and control variables.	Can identify and plan an appropriate approach to answer a scientific question, identifying clear independent, dependent and control variables.
Can recognise unfairness and what is being changed in a test	Can, with teacher guidance, identify what is being changed, what is being measured, and one or two variables which need to stay the same in order to make the test fair.	Can carry out a fair test which identifies the variable being changed, measured and controlled. Recognise and explain why it is fair.	Can make a plan which identifies how one variable is changed, while all the others are kept the same.	Can identify key variables to be considered and with teacher guidance, choose one independent variable to change, decide how to measure the effect (dependent variable) and which variables to control.	Can identify key variables to be considered and choose an appropriate variable to be varied (independent variable), measured for effect (dependent variable) and variables that need to be controlled.
Can make a simple prediction, 'I think...'	Can make a prediction with a simple reason, 'I think...because...'	Can make a prediction, giving a reason based on everyday experience.	Can make a prediction, giving a reason which considers scientific ideas	Can hypothesise, giving a reason which considers scientific ideas and uses	Can hypothesise, giving a reason which is based on scientific concepts and uses

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			and is based on everyday experience.	knowledge of a similar everyday experience applied it to a new situation, e.g. I think little bits of sugar dissolve faster than a sugar lump.	knowledge of a similar everyday experience, applied it to a new situation, e.g. I think little bits of sugar dissolve faster than a sugar lump.
Can perform simple tests with support.	Can perform simple tests.	Can set up and perform simple practical enquiries with support.	Can set up and perform a range of practical enquiries with support.	Can set up and perform a range of practical enquiries.	Can set up and perform a wide range of practical enquiries.

Making Observations and Taking Measurements

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC: Observe closely, using simple equipment		NC: Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers		NC: Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	
Can begin to observe closely using simple equipment provided and measure in non-standard units. For example, compare length, area and volumes visually, mass by feel, temperature by touch, time by clapping or ordering, sound, light force using senses	Can use simple equipment provided to make observations and measurements related to the test, measuring in standard and non-standard units.	Can make observations and measurements which are relevant to the test. Can measure quantities in standard units, using a range of simple equipment.	Can select suitable equipment for a test and make a series of accurate observations and measurements which are adequate for the test.	Can select apparatus for a range of tests and use effectively, making a series of systematic observations, measurements and comparisons. Can recognise patterns and begin to repeat observations and measurements, offering simple explanations for any differences found.	Can select apparatus for a range of tests and use effectively, making a series of systematic observations, measurements and comparisons with precision appropriate to the test. Can recognise patterns and repeat observations and measurements, offering possible explanations for any differences found.

Recording and Presenting Results

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC: Gather and record data to help in answering questions		NC: Gather, record, classify and present data in a variety of ways to help in answering questions NC: Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables		NC: Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
Can describe simple features, observations and	Can describe observations and measurements in a	Can record observations and measurements in a variety	Can record observations, measurements and	Can record observations and measurements	Can record observations and measurements

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measurements and record in a variety of simple ways, e.g. pictures, words, provided tables	variety of ways, including simple tables, labelled drawings, bar charts and through the use of scientific vocabulary	of ways, including ICT. Can record results in a variety of ways, including simple tables, labelled diagrams, keys and bar charts.	comparisons using tables, including ICT. Can construct their own tables, choosing headings and the number and range of measurements, draw labelled diagrams, keys and bar charts.	systematically, including the use of ICT. Can begin to choose the best method, e.g. scientific diagrams, classification keys, tables, bar and line graphs, repeated tests and averaging (mean).	systematically, including the use of ICT. Can record results of increasing complexity and choose the best recording method, e.g. scientific diagrams, classification keys, tables, bar and line graphs, repeated tests and averaging (mean).
Can, where appropriate, record observations in a bar chart (e.g. pictogram) with axis labelled by the teacher	Can, where appropriate and supported by the teacher, record observations and measurements in simple bar charts	Can, where appropriate, record observations and standard measurements in bar charts, deciding on the axes	Can, where appropriate, record observations, measurements and comparisons using bar charts, choosing scale and labelling axes. Can begin to plot points to form simple graphs and use these to point out and interpret patterns in data	Can, where appropriate, present data as bar charts and line graphs. Can construct bar and line graphs, selecting scale and labelling axes. Can begin to interpret and systematically explain patterns in data.	Can, where appropriate, choose to present increasingly complex data as bar charts and line graphs. Can construct bar and line graphs, selecting scale and labelling axes. Can interpret and systematically explain patterns in data.

Answering Questions and Drawing Conclusions

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NC: Use their observations and ideas to suggest answers to questions		NC: Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions NC: Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions NC: Use straightforward scientific evidence to answer questions or to support their findings		NC: Use test results to make predictions to set up further comparative and fair tests NC: 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	
Can talk about what happened, communicating their findings in a simple	Can explain what happened and relate this to their earlier prediction made.	Can identify and explain simple patterns in recorded measurements and observations, and	Can begin to relate conclusions to patterns in data and to prior scientific	Can draw conclusions which are consistent with evidence and relate these to scientific knowledge and	Can draw clear conclusions, which are linked to evidence from data patterns and relate these to scientific

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way, e.g. talk, drawing, simple charts.		communicate what has been found in a simple scientific way.	knowledge and understanding. Can explain conclusions using appropriate scientific language.	understanding. Can use appropriate scientific language and conventions to communicate quantitative and qualitative data	knowledge and understanding. Can use accurate scientific language and conventions to communicate quantitative/qualitative data and explain causal relationship.
Can identify which parts of the test have been done well and which need to be improved.	Can question how carefully the test has been carried out and what needs improvement.	Can suggest improvements to the test to improve accuracy.	Can suggest improvements to the tests, giving reasons.	Can evaluate the accuracy of tests and make practical suggestions about how working methods could be improved.	Can evaluate the effectiveness of their tests, the limitations and suggest how methods could be improved.

Ideas and Evidence in Science

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		NC: Use straightforward scientific evidence to answer questions or to support their findings.		NC: Identify scientific evidence that has been used to support or refute ideas or arguments	
Can recognise that scientists find out about scientific ideas by asking questions and testing them.	Can recognise that scientists collect evidence by making observations and measurements in order to answer a question.	Can recognise why it is important to collect evidence by making observations and measurements to answer a question, and that science has made our lives better.	Can recognise that scientific ideas are based on evidence, have made our lives better and that there is some risk in science.	Can describe how experimental evidence and creative thinking are combined to provide scientific explanations, that has changed over time.	Can describe how experimental evidence and creative thinking are combined to provide scientific explanations, that change over time and has both positive and negative effects.

EYFS Understanding the World

ELG: The Natural World

Explore the natural world around them, making observations and drawing pictures of animals and plants;
 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;
 Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.