# Newstead Primary School
# Progression of Knowledge, Skills and Understanding in Working Scientifically

| Breadth of Study | F1 | F2 | Year 1 | Year 2 |
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| **Observing Closely** | Show curiosity in the environment around them inside and outdoors. | Comment on unknown objects based on own exploration.<br><br>Observe and talks about the changes in objects over a period of time. | Talk about what they see, touch, smell, hear or taste.<br><br>**Use simple equipment to help them make observations.**<br><br>**Find out by watching, listening, tasting, smelling and touching.** | **Use see, touch, smell, hear or taste to help them answer questions.**<br><br>Use some scientific words to describe what they have seen and measured.<br><br>Compare several things.<br><br>Suggest ways of finding out through listening, hearing, smelling, touching and tasting. |
| **Performing Tests** | Select equipment to help them follow their own interest | Takes part in simple experiment led by an adult discussing the difference in the objects.<br><br>Make simple predictions with support. | **Perform a simple test.**<br><br>Tell other people about what they have done.<br><br>Give a simple reason for their answers. | **Carry out a simple fair test.**<br><br>Explain why it might not be fair to compare two things. Say whether things happened as they expected.<br><br>Suggest how to find things out.<br><br>Use prompts to find things out. |

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| | | | | Say whether things happened as they expected and if not why not. |
| **Identifying and Classifying** | Use all their senses in hands-on exploration of natural material | Carries out simple set up experiment that enables them to talk about similarities | **Identify and classify things they observe.**<br><br>**Ask simple questions and recognise that they can be answered in different ways.**<br><br>Answer some scientific questions.<br><br>Give a simple reason for their answers. Explain what they have found out.<br><br>**Talk about similarities and differences.**<br><br>Explain what they have found out using scientific vocabulary. | Organise things into groups.<br><br>Find simple patterns (or associations).<br><br>**Identify animals and plants by a specific criteria, eg, lay eggs or not; have feathers or not.**<br><br>Suggest more than one way of grouping animals and plants and explain their reasons. |
| **Recording Findings** | Describe what they see, hear and feel whilst outside. | Records observations in a number of ways; drawings, written work, photographs | Show their work using pictures, labels and captions.<br><br>**Record their findings using standard units.**<br><br>**Put some information in a chart or table.**<br><br>Use ICT to show their working.<br><br>**Make accurate measurements.** | **Use text, diagrams, pictures, charts, tables to record their observations.**<br><br>**Can they measure using simple equipment.**<br><br>Use information from books and online information to find things out. |

# Newstead Primary School IMPLEMENTATION
# Progression of Knowledge, Skills and Understanding in Working Scientifically

| Breadth of Study | Year 3 | Year 4 | Year 5 | Year 6 |
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| **Planning** | Use different ideas and suggest how to find something out.<br><br>Make and record a prediction before testing.<br><br>Plan a fair test and explain why it was fair.<br><br>**Set up a simple fair test to make comparisons.**<br><br>**Explain why they need to collect information to answer a question.**<br><br>**Record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables.** | **Set up a simple fair test to make comparisons.**<br><br>**Plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated.**<br><br>Suggest improvements and predictions.<br><br>**Decide which information needs to be collected and decide which is the best way for collecting it.**<br><br>**Use their findings to draw a simple conclusion.**<br><br>**Plan and carry out an investigation by controlling variables fairly and accurately.**<br><br>**Use test results to make further predictions and set up further comparative tests.** | **Plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary.**<br><br>**Make a prediction with reasons.**<br><br>**Use test results to make predictions to set up comparative and fair tests.**<br><br>**Present a report of their findings through writing, display and presentation.**<br><br>Explore different ways to test an idea, choose the best way and give reasons.<br><br>**Vary one factor whilst keeping the others the same in an experiment.**<br><br>Use information to help make a prediction.<br><br>Explain, in simple terms, a scientific idea and what evidence supports it. | Explore different ways to test an idea, choose the best way, and give reasons.<br><br>**Vary one factor whilst keeping the others the same in an experiment and explain why they do this.**<br><br>**Plan and carry out an investigation by controlling variables fairly and accurately.**<br><br>Make a prediction with reasons.<br><br>Use information to help make a prediction.<br><br>**Use test results to make further predictions and set up further comparative tests**<br><br>**Explain, in simple terms, a scientific idea and what evidence supports it.**<br><br>**Present a report of their findings through writing, display and presentation.** |

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| **Obtaining and presenting evidence** | **Measure using different equipment and units of measure.**<br><br>**Record their observations in different ways. (labelled diagrams, charts etc)**<br><br>**Describe what they have found using scientific language.**<br><br>**Make accurate measurements using standard units.**<br><br>**Explain their findings in different ways.**<br><br>**Use their findings to draw a simple conclusion.**<br><br>**Suggest improvements and predictions for further tests.** | **Take measurements using different equipment and units of measure and record what they have found in a range of ways**<br><br>**Make accurate measurements using standard units**<br><br>**Explain their findings in different ways (display, presentation, writing).**<br><br>**Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models.** | **Take measurements using a range of scientific equipment with increasing accuracy and precision**<br><br>**Take repeat readings when appropriate**<br><br>**Record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs**<br><br>Decide which units of measurement they need to use.<br><br>Explain why a measurement needs to be repeated. | Explain why they have chosen specific equipment. (inc ICT based equipment)<br><br>**Decide which units of measurement they need to use**<br><br>**Explain why a measurement needs to be repeated**<br><br>**Record their measurements in different ways (inc bar charts, tables and line graphs)**<br><br>**Take measurements using a range of scientific equipment with increasing accuracy and precision**<br><br>**Plan in advance which equipment they will need and use it well**<br><br>**Make precise measurements**<br><br>**Collect information in different ways**<br><br>**Record their measurements and observations systematically**<br><br>**Explain qualitative and quantitative data** |

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| **Considering evidence and evaluating** | **Explain what they have found out and Use their measurements to say whether it helps to answer their question.**<br><br>**Use a range of equipment (including a data-logger) in a simple test.**<br><br>Suggest how to improve their work if they did it again. | **Find any patterns in their evidence or measurements**<br><br>Make a prediction based on something they have found out.<br><br>Evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables.<br><br>**Use straightforward scientific evidence to answer questions or to support their findings.** | **Report and present findings from enquiries through written explanations and conclusions**<br><br>**Use a graph to answer scientific questions**<br><br>Find a pattern from their data and explain what it shows<br><br>Link what they have found out to other science<br><br>Suggest how to improve their work and say why they think this | Find a pattern from their data and explain what it shows<br><br>**Use a graph to answer scientific questions**<br><br>Link what they have found out to other science<br><br>Suggest how to improve their work and say why they think this<br><br>Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models<br><br>Report findings from investigations through written explanations and conclusions<br><br>**Identify scientific evidence that has been used to support to refute ideas or arguments.**<br><br>**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.**<br>**Draw conclusions from their work**<br>Link their conclusions to other scientific knowledge<br>Explain how they could improve their way of working |