



Newstead Primary School

Progression of Knowledge, Skills and Understanding in Working Scientifically

Breadth of Study	Foundation Stage	Year 1	Year 2
Observing Closely	<u>The Natural World</u> <u>Children at the expected level of development will:</u> -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.	Talk about what they see, touch, smell, hear or taste. Use simple equipment to help them make observations. Find out by watching, listening, tasting, smelling and touching.	Use see, touch, smell, hear or taste to help them answer questions. Use some scientific words to describe what they have seen and measured. Compare several things. Suggest ways of finding out through listening, hearing, smelling, touching and tasting.
Performing Tests		Perform a simple test. Tell other people about what they have done. Give a simple reason for their answers.	Carry out a simple fair test. Explain why it might not be fair to compare two things. Say whether things happened as they expected. Suggest how to find things out. Use prompts to find things out. Say whether things happened as they expected and if not why not.

Identifying and Classifying		Identify and classify things they observe. Ask simple questions and recognise that they can be answered in different ways. Answer some scientific questions. Give a simple reason for their answers. Explain what they have found out. Talk about similarities and differences. Explain what they have found out using scientific vocabulary.	Organise things into groups. Find simple patterns (or associations). Identify animals and plants by a specific criteria, eg, lay eggs or not; have feathers or not. Suggest more than one way of grouping animals and plants and explain their reasons.
Recording Findings		Show their work using pictures, labels and captions. Record their findings using standard units. Put some information in a chart or table. Use ICT to show their working. Make accurate measurements.	Use text, diagrams, pictures, charts, tables to record their observations. Can they measure using simple equipment. Use information from books and online information to find things out.



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IMPLEMENTATION

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

Obtaining and presenting evidence	Measure using different equipment and units of measure. Record their observations in different ways. (labelled diagrams, charts etc) Describe what they have found using scientific language. Make accurate measurements using standard units. Explain their findings in different ways. Use their findings to draw a simple conclusion. 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 Make accurate measurements using standard units Explain their findings in different ways (display, presentation, writing). 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 Take repeat readings when appropriate Record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs Decide which units of measurement they need to use. Explain why a measurement needs to be repeated.	Explain why they have chosen specific equipment. (inc ICT based equipment) Decide which units of measurement they need to use Explain why a measurement needs to be repeated Record their measurements in different ways (inc bar charts, tables and line graphs) Take measurements using a range of scientific equipment with increasing accuracy and precision Plan in advance which equipment they will need and use it well Make precise measurements Collect information in different ways Record their measurements and observations systematically 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. Use a range of equipment (including a data-logger) in a simple test. Suggest how to improve their work if they did it again.	Find any patterns in their evidence or measurements Make a prediction based on something they have found out. Evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables. Use straightforward scientific evidence to answer questions or to support their findings.	Report and present findings from enquiries through written explanations and conclusions Use a graph to answer scientific questions Find a pattern from their data and explain what it shows Link what they have found out to other science Suggest how to improve their work and say why they think this	Find a pattern from their data and explain what it shows Use a graph to answer scientific questions Link what they have found out to other science Suggest how to improve their work and say why they think this Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models Report findings from investigations through written explanations and conclusions Identify scientific evidence that has been used to support to refute ideas or arguments. 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. Draw conclusions from their work Link their conclusions to other scientific knowledge Explain how they could improve their way of working
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