

## Working Scientifically (progression of skills)

| Strand                                  | Key Stage 1   | Lower Key Stage 2   | Upper Key Stage 2   |
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| <b>Questioning</b>                      | explore the world around them and raise their own <b>simple</b> questions   | raise their own <b>relevant</b> questions about the world around them   | use their science experiences to explore ideas and raise different kinds of questions   |
| <b>Investigating</b>                    | begin to recognise different ways in which they might answer scientific questions   | start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions  | select and plan the most appropriate type of scientific enquiry to use to answer scientific questions   |
| - pattern seeking                       | with guidance, they should begin to notice patterns and relationships   | begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them   | look for different causal relationships in their data and identify evidence that refutes or supports their ideas  |
| - sorting & classifying                 | use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) | talk about criteria for grouping, sorting and classifying; and use simple keys  | use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment   |
| - observing over time/observing closely | observe closely using simple equipment with help, observe changes over time   | make systematic and careful observations help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used  | make their own decisions about what observations to make, what measurements to use and how long to make them for  |
| - research                              | ask people questions and use simple secondary sources to find answers   | recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations   | recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact   |
| <b>Testing</b>                          |   | Set up simple practical enquiries, comparative and fair tests   | recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why   |
| - comparative testing                   | carry out simple tests  | recognise when a simple fair test is necessary and help to decide how to set it up  |   |
| - fair testing                          |   |   |   |
| <b>Explaining &amp; Modelling</b>       | use their observations and ideas to suggest answers to questions talk about what they have found out and how they found it out                      | with help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.   | identify scientific evidence that has been used to support or refute ideas or arguments   |
|   | with help, they should record and communicate their findings in a range of ways and begin to use simple scientific language                         | use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions | use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas, use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degree of trust in results |
|   |   |   | talk about how scientific ideas have developed over time  |

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| <p style="text-align: center;"><b>Measuring &amp; Data Handling</b></p> | <p>use simple measurements and equipment (e.g. hand lenses, egg timers) to <b>gather</b> data</p> <p>record simple data</p> | <p>take accurate measurements using standard units<br/>learn how to use a range of (new) equipment, such as data loggers / thermometers appropriately</p> <p>collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data</p> <p>with support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.</p> | <p>choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate.</p> <p>decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use their results to make predictions and identify when further observations, comparative and fair tests might be needed</p> |
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