# Science
# Knowledge and Skills Progression
# Progression of skills for Working Scientifically

| EYFS | KS1 | Lower KS2 | Upper KS2 |
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| Engage in open-ended activity **playing and exploring** | Explore different types of science enquiries, including practical activities | Should be given a range of scientific experiences including different types of science enquiries to answer questions | Talk about how scientific ideas have developed over time |
| **Questioning – Reasoning and thinking skill** | | | |
| Shows curiosity about objects, events and people **playing and exploring**<br>Understand 'why' questions (3-4)<br>Ask questions to find out more and to check they understand what has been said to them. (Reception) | Explore the world around them and raise their own simple questions | Raise their own relevant questions about the world around them and use different types of scientific enquiries to answer them | Use their science experiences to explore ideas and raise different kinds of questions and plan different types of scientific enquiries to answer these questions.<br>Recognising and controlling variables where necessary |
| | Recognise that questions can be answered in different ways | 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 |
| **Predicting - Reasoning and thinking skill** | | | |
| | | 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 | Use their results to make predications and identify when further observations, comparative and fairs tests might be needed. |
| **Concluding - Reasoning and thinking skill** | | | |
| Make links and notice patterns in their experience **Creating and thinking critically**<br>Talk about the differences between materials and changes they notice.<br>Explore and talk about different forces they can feel. | 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 casual relationships in their data and identify evidence that refutes or supports their ideas |

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| Explore the natural world around them.<br>Describe what they see, hear and feel whilst outside.<br>Understand the effect of changing seasons on the natural world around them.<br>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. | Use their observations and ideas to suggest answers to questions<br>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 |
| **Testing – Functional skill** | | | |
| Take a risk, engage in new experiences and learn by trial and error **playing and exploring**<br>Explore how things work. | Begin to recognise different ways in which they may answer scientific questions | Start to make their own decision 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 |
| Find ways to solve problems/ find new ways to do things/ test their ideas **Creating and thinking critically** | Carry out simple tests | Set up simple practical enquiries, comparative and fair tests. Recognise when a simple fair test is necessary and help to decide how to set it up | Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why |
| **Identifying and classifying – Functional skill** | | | |
| Develop ideas of grouping, sequences, cause and effect **Creating and thinking critically**<br>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. | Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) | Taught to gather, record, classify and present data in a variety of ways to help in answering questions identifying differences, similarities or changes related to simple scientific ideas and processes.<br>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. |
| **Recording – Functional skill** | | | |
| Return to and build on their previous learning, refining ideas and developing their ability to represent them.<br>Create collaboratively, sharing ideas, resources and skills. | Record simple data to help answer questions | Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables | 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 |
| **Observing – Functional skill** | | | |
| Explore the natural world around them, making observations and drawing pictures of animals and plants. | Observe closely using simple equipment<br>With help, observe changes over time | Make systematic and careful observations<br>Help to make decisions about what observations to make, how long to make | Make their own decision about what observations to make, what measurements to use and how long to make them for |

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| Use senses to explore the world around them **Playing and exploring** | | them for and the type of simple equipment that might be used | |
| **Measuring – Functional skill** | | | |
| Use a range of small tools | Use simple measurements and equipment (e.g. hand lenses, timers) to gather data | Take accurate measurements using standard units<br>Learn how to use a range of equipment such as data loggers/thermometers appropriately | Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeated measurements where appropriate |