

# Science: Progression of Skills



	Questioning and Planning	Experimenting	Recording	Concluding
<b>Nursery</b>	<ul style="list-style-type: none"> <li>• Show curiosity about objects around them</li> <li>• Shows an understanding of and uses 'who', 'what', 'where' in simple questions</li> <li>• Questions why things around them happen using: who, what, when and how</li> <li>• Asks questions about aspects of the familiar world around them such as: the place they live or the natural world</li> </ul>	<ul style="list-style-type: none"> <li>• Understands the use of different equipment used for investigative work</li> <li>• With support can choose resources they may need</li> <li>• Understand the equipment and tools used for investigative work have to be used safely</li> <li>• During new enquiries/ investigations takes risks, engage and learns from trial and error</li> <li>• Can follow directions when setting up investigations</li> <li>• Closely observe what animals, people and vehicles do</li> <li>• Use talk to explain what is happening</li> </ul>	<ul style="list-style-type: none"> <li>• Can talk about objects and events involved in the enquiry/ investigation</li> <li>• Can talk about some of the things they have observed such as: plants, animals and natural objects</li> <li>• Begin to use more complex sentences to link thoughts about what they have found out</li> </ul>	<ul style="list-style-type: none"> <li>• During explanations, can connect ideas, explain what is happening and anticipate what might happen next</li> <li>• Have a developing understanding of simple concepts and can use these in explanations eg big/little</li> <li>• Can build up vocabulary modelled to them through their enquiries and investigations</li> </ul>

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Reception	<ul style="list-style-type: none"> <li>Shows an increasing curiosity about the world around them and asks relevant questions about why things occur using: who, what, when and how</li> <li>Generates a variety of ideas for testing (not always realistic/ appropriate)</li> <li>Listens to others and responds to their ideas about investigations and the natural world around them</li> <li>With support or prompting, talks about what they think might happen based on their own experiences</li> <li>Will confidently talk about their ideas, can take turns with listening to others and they take account of one another's ideas about how to organise their enquiry</li> </ul>	<ul style="list-style-type: none"> <li>Independently uses their senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses</li> <li>During independent enquiry, chooses the resources they need for their chosen activities and say when they do or don't need help</li> <li>In investigative work, explore and use a variety of tools made available to them</li> <li>With support, carry out simple investigations in a small group</li> <li>When observing, can use simple comparative vocabulary eg bigger/smaller</li> <li>Can confidently speak in a familiar group, and will choose the resources they need for the investigation</li> <li>Make observations of animals and plants, explain why some things occur and talk about changes.</li> </ul>	<ul style="list-style-type: none"> <li>With support, identify, compare, classify and group a variety of places, objects, materials and living things</li> <li>Talk about objects and events involved in the enquiry/ investigation</li> <li>Create simple representations of findings eg through pictures and role play and uses marks that they can interpret and explain</li> <li>With support, can look closely at similarities, differences, patterns and change</li> <li>Use everyday language to talk about size, weight, capacity, position, distance and time to compare quantities and objects</li> <li>Know about similarities and differences in relation to places, objects, materials and living things.</li> </ul>	<ul style="list-style-type: none"> <li>With support, explain why some things occurred in their investigation</li> <li>With support, talk using simple comparative language, about what they have found out or what they think might happen next/change based on their own experiences</li> <li>Can answer the initial question simply</li> <li>Can answer 'how' and 'why' questions about their investigations</li> <li>Develop their own explanations by connecting ideas or events</li> <li>Talk about the features of their own immediate environment and how environments might vary from one another</li> </ul>

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KS1	<ul style="list-style-type: none"> <li>Carefully make observations of the natural world around them</li> <li>Use their observations to ask increasingly in depth questions about the natural world around them</li> <li>Recognise that questions can be answered in different ways:                             <ul style="list-style-type: none"> <li>- Observing changes over time</li> <li>- Grouping and classifying</li> <li>- Comparative and fair tests</li> <li>- Spotting patterns</li> </ul> </li> <li>Discuss their ideas on how to find things out</li> <li>Begin to make predictions and give reasons</li> <li>Talk about the aim and reasons for scientific tests they are working on and understand what a fair test is</li> </ul>	<ul style="list-style-type: none"> <li>Carry out simple, practical enquiries/investigations</li> <li>Use simple equipment safely with increasing independence</li> <li>Talk about what they are observing</li> <li>Make careful observations over time, sometimes using equipment to help them observe carefully</li> <li>While observing, identify, compare and describe using simple scientific language provided to them</li> <li>Measure using non-standard units</li> <li>With support, use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> </ul>	<ul style="list-style-type: none"> <li>Use simple features to compare objects, materials and living things</li> <li>Decide how to sort and classify objects into simple groups with some help</li> <li>Sort, group, gather, record data in a variety of ways to help in answering questions such as: simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables</li> <li>Use simple and scientific language given to them to support them in reporting their findings</li> <li>Begin to notice patterns and relationships</li> </ul>	<ul style="list-style-type: none"> <li>Talk about what happened during the enquiry/ investigation and how they found it out</li> <li>Say what happened in their investigations and whether they were surprised at the results or not</li> <li>Identify and discuss the difference between results</li> <li>When concluding, use simple scientific and comparative language eg bigger, faster etc</li> <li>Say what they think they could change about their enquiry/investigation</li> <li>Can talk about how science helps us in our daily lives eg torches help us to see</li> <li>Begin to understand that science can be dangerous</li> </ul>

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LKS2	<ul style="list-style-type: none"> <li>Ask increasingly relevant scientific questions and use different types of scientific enquiries to answer them</li> <li>Decide when and how research will help plan and begin to carry out research of on their own</li> <li>Make some decisions about which types of enquiry will be the best way of answering questions including:                             <ul style="list-style-type: none"> <li>- Observing changes over a period of time</li> <li>- Noticing patterns</li> <li>- Grouping and classifying</li> <li>- Carrying out comparative and fair tests</li> </ul> </li> <li>Recognise when a fair test is necessary and help decide how to set it up</li> <li>Help set up practical enquiries/investigations with comparative fair tests</li> <li>Make predictions drawing on previous experiences and knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Carry out practical enquiries/investigations with comparative fair tests</li> <li>Learn to use some new equipment eg data loggers</li> <li>With support can chose from a selection of equipment including thermometers and data loggers</li> <li>Make systematic and careful observations</li> <li>Ask relevant questions about what they observe</li> <li>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> </ul>	<ul style="list-style-type: none"> <li>Through discussion with adults, choose the most appropriate way to record data from choices given</li> <li>Talk about criteria for grouping, sorting and classifying</li> <li>Group and classify objects based on specific criteria</li> <li>Record findings using drawings, labelled diagrams, bar charts, keys and tables</li> <li>Use scientific language to report and record findings</li> <li>Can spot patterns in results and look for changes, similarities and differences</li> </ul>	<ul style="list-style-type: none"> <li>Can talk about their findings and use this to support them with writing what they have found out</li> <li>Report and present their results and conclusions to others in written and oral forms with increasing confidence</li> <li>Use results to draw simple conclusions, make predictions, suggest improvements and raise further questions</li> <li>Make links between their results and other scientific evidence given to them</li> <li>Recognise when secondary sources can help them to answer questions which have not been answered through practical investigations</li> <li>Know which things in science have made our lives better</li> <li>Can understand that there is some risk in scientific enquiry/ investigations</li> </ul>

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UKS2	<ul style="list-style-type: none"> <li>Use scientific experiences and research to explore and raise different kinds of questions about scientific phenomena</li> <li>Explore and talk about their ideas and research, raising different types of scientific questions</li> <li>Select and plan the most appropriate ways to answer science questions using different types of scientific enquiry, including:                             <ul style="list-style-type: none"> <li>- Observing changes over a period of time</li> <li>- Noticing patterns</li> <li>- Grouping and classifying</li> <li>- Carrying out comparative and fair tests</li> </ul> </li> <li>Set up comparative and fair tests to decide which variables to control</li> <li>Make and explain predictions using scientific language and begin to support this with scientific evidence</li> </ul>	<ul style="list-style-type: none"> <li>Set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary</li> <li>Independently choose equipment and explain how to use it accurately</li> <li>Decide which variables to control and explain why</li> <li>Make own decisions about what observations to make and whether they need to repeat them</li> <li>Use standard units of measure including Newtons, g, Kg, mm, cm, Mins, Seconds, Volts, Km/h, m per sec, m/sec</li> <li>With increasing accuracy, take measurements using a range of scientific equipment, taking repeat readings when appropriate</li> <li>Take accurate and precise measurements</li> </ul>	<ul style="list-style-type: none"> <li>Choose the most appropriate way to record data from a range</li> <li>Decide and choose the most appropriate way to present data</li> <li>Independently group, classify and describe living things and materials</li> <li>Use and develop keys and other information records to identify, classify and describe living things and materials</li> <li>Record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, bar, line and scatter graphs</li> <li>Report and present findings using detailed scientific language</li> <li>Can look for patterns and notice casual relationships in their findings</li> </ul>	<ul style="list-style-type: none"> <li>Can confidently present findings from enquiries/investigations in oral and written forms, displaying trust in their results</li> <li>Use evidence to justify ideas and conclusions</li> <li>Explain conclusions using scientific language and understanding</li> <li>Use test results to identify when further tests and observations may be needed and use this to set up further comparative and fair tests</li> <li>Discuss how their results support or differ from other scientific evidence and research and how they can use this knowledge to answer unanswered questions</li> <li>Distinguish between fact and opinion— use this knowledge to support conclusions</li> <li>Talk about how scientific ideas have changed over time</li> <li>Explain positive and negative effects of scientific developments</li> <li>Understand how science is used in every day life and how we rely on science</li> </ul>