

Progression of skills and knowledge



SUBJECT: Geography

<p>Subject INTENT: A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.</p>				
EYFS		KS1	LKS2	UKS2
Enquiring	<p>ELG: Understanding the World</p> <ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. <p>Communication and Language</p>	<p>Explore the world around them and raise their own simple questions Ask people questions and use simple secondary sources to find answers Recognise that they may need to ask multiple questions to fully understand what they want to know, or think carefully about what they should ask. Use a wide range of secondary sources to find answers to a single question, to get a wider overview of an answer.</p>	<p>Raise their own relevant questions about the world around them Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations Consider how practical activities can often raise more questions. Begin to consider the reasons they may get different answers to the same question.</p>	<p>Use their science experiences to explore ideas and raise different kinds of questions Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience</p>
	<ul style="list-style-type: none"> • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts. 	<p>KS1</p> <p>Experience different types of science enquiries, including practical activities Begin to recognise different ways in which they might answer scientific questions. Begin to understand that there are a variety of different methods for answering the same question and that there are factors that contribute to getting different answers - begin to consider why.</p>	<p>LKS2</p> <p>Should be given a range of scientific experiences including different types of science enquiries to answer questions Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions Experience how to plan different types of scientific enquiry and what they must ensure they consider. Begin to plan independently.</p>	<p>UKS2</p> <p>Talk about how scientific ideas have developed over time Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review Select and plan the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate</p>
Planning and Setting up				

Testing	KS1	LKS2	UKS2
	Carry out simple tests Set up tests and consider what components are important for it to work	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 Set up practical enquiries, comparative and fair tests. Begin to explain why their set up creates a fair test.	Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why Carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate
Using Equipment	KS1	LKS2	UKS2
	Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data Use a variety of non-standard and standard units of measure and begin to explain why we get different answers with non-standard when we repeat tests/compare to different results. What is accuracy?	Take accurate measurements using standard units learn how to use a range of (new) equipment, such as data loggers / thermometers appropriately Independently choose the most appropriate equipment to make measurements with	Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate. Use appropriate techniques, apparatus, and materials during fieldwork paying attention to health and safety Evaluate the reliability of methods and suggest possible improvements Evaluate risks Pay attention to concern for accuracy, precision, repeatability.
Observing and Measuring	KS1	LKS2	UKS2
	Observe closely using simple equipment With help, observe changes over time With guidance, they should begin to notice patterns and relationships. Begin to explore how patterns reveal themselves and what they look like within data.	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 Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. Explore why we make observations and how to focus on one specific area for observation (challenge: discuss a dependent variable) Analyse patterns and begin to discuss why they are occurring.	Make their own decisions about what observations to make, what measurements to use and how long to make them for. Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Make and record observations and measurements using a range of methods for different Investigations. Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
	KS1	LKS2	UKS2

Gathering and Recording	<p>Record simple data Record observations and measurements using drawings and diagrams including labels. Begin to use Carroll diagrams, Venn diagrams and bar graphs.</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 Collect and record data from their own observations and measurements in a variety of ways: begin to use axis and line graphs, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse and explain this data.</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 Record observations systematically and logically and choose the most appropriate method for recording these.</p>
Reporting Findings	<p>KS1 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, they should record and communicate their findings in a range of ways and begin to use simple scientific language Form simple explanations about their observations using scientific observations to justify their results</p>	<p>LKS2 With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions 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; and displays Pupils should look for changes, patterns, similarities and differences in their data, mostly independently, in order to draw simple conclusions and answer questions Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including presentations of results and conclusions</p>	<p>UKS2 Identify scientific evidence that has been used to support or refute ideas or arguments 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 Present reasoned explanations, including explaining data in relation to predictions and hypotheses</p>
Using Results	<p>KS1</p>	<p>LKS2 With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected. Begin to retest and understand why it is essential to undertake retests. 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>UKS2 Use their results to make predictions and identify when further observations, comparative and fair tests might be needed Make predictions using scientific knowledge and understanding Evaluate data, showing awareness of potential sources of random and systematic error Identify further questions arising from their results</p>