

Science Skills Progression Map

Key Stage 1: National Curriculum Expectations

Pupils should be taught to:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Key Stage 2 : National Curriculum Expectations

Pupils should be taught about:

LKS2

- support their findings asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

	<ul style="list-style-type: none">• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions• identifying differences, similarities or changes related to simple scientific ideas and processes• using straightforward scientific evidence to answer questions <p>UKS2</p> <ul style="list-style-type: none">• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs• using test results to make predictions to set up further comparative and fair tests• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
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	<ul style="list-style-type: none"> identifying scientific evidence that has been used to support or refute ideas or arguments 		
<p><u>Three and Four Year Olds will:</u></p> <ul style="list-style-type: none"> Begin to understand the need to respect and care for the natural environment and all living things. Understand the key features of the life cycle of a plant and an animal. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and or different properties. Talk about the differences between materials and changes they notice. <p><u>Children in Reception will:</u></p> <ul style="list-style-type: none"> Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. Explore the natural world around them, making observations and drawing pictures of animals and plants; 			
	<p>Year 1 & 2</p> <p>Humans including animals/ Living things and their habitats (including humans.) Seasonal changes including plants/ Plants and Trees/ Use of everyday Materials / Materials and their properties</p>	<p>Year 3 & 4</p> <p>Plants/ Rocks/ Animals/ Forces and magnets/Light/Electricity/ States of Matter/ Living things & habitats/sound</p>	<p>Year 5 & 6</p> <p>Animals/Forces/Materials/ states of matter/Electricity/light/ Earth& space/living things & habitats/evolution</p>

<p>Observe</p> <p>(Yellow)</p>	<p>Observing closely, using simple equipment (hand lens)</p> <ul style="list-style-type: none"> • Compare objects based on obvious, observable features e.g. size, shape, colour, texture etc. • Make observations linked to answering the question. 	<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <ul style="list-style-type: none"> • Compare objects based on more sophisticated, observable features and present observations in labelled diagrams. • Make a range of relevant observations linked to the question. 	<ul style="list-style-type: none"> • Compare not only based on physical properties but also on knowledge gained through previous enquiry. • Make a range of relevant observations linked to the question
<p>Question</p> <p>(Blue)</p>	<p>Asking simple questions and recognising that they can be answered in different ways</p> <ul style="list-style-type: none"> • Ask a yes/no questions to aid sorting. • Ask one/two simple research questions linked to a topic. 	<p>Support their findings asking relevant questions and using different types of scientific enquiries to answer them</p> <ul style="list-style-type: none"> • Ask a range of Yes/No questions to aid sorting • Ask a range of research questions linked to a topic. • Ask a range of question to 	<p>Ask a range of Yes/No questions to aid sorting and decide which ways of sorting will give useful information.</p> <ul style="list-style-type: none"> • Ask a range of questions recognising that some can be answered through research and others may not • Ask a range of questions and identify the type of enquiry that

	<ul style="list-style-type: none"> • Choose a question to undertake a fair test. • Ask a question about what might happen over time or that is looking for a pattern. 	<p>undertake a fair test.</p> <ul style="list-style-type: none"> • Ask a range of question about what might happen over time or that is looking for a pattern 	<p>will help to answer the questions. Ask further questions based on results.</p>
<p>Test (Green)</p>	<p>Performing simple tests</p> <ul style="list-style-type: none"> • Identify the headings for the two classification groups (it is ..., it is not) • Choose equipment to use and decide what to do and what to observe or measure in order to answer the question. • Compare objects based on obvious, observable features e.g. size, shape, colour, texture etc. • Make observations linked to 	<p>Setting up simple practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> • Put appropriate headings onto intersecting Venn and Carroll diagrams. • Choose a research source from a range provided • Decide what to change and what to measure or observe • Decide how often to take a measurement • Compare objects based on more sophisticated, observable features and present observations in labelled diagrams. • Make a range of relevant 	<p>Using test results to make predictions to set up further comparative and fair tests</p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <ul style="list-style-type: none"> • Identify specific clear questions that will help to sort without ambiguity • Choose suitable sources to use • Recognise and independently control variables where necessary.

	<p>answering the question.</p> <ul style="list-style-type: none"> • When appropriate, measure using standard units where all the numbers are marked on the scale. 	<p>observations linked to the Question.</p> <ul style="list-style-type: none"> • Measure using standard units (according to age-related mathematics) where not all the numbers are marked on the scale, and take repeat readings where necessary 	<ul style="list-style-type: none"> • Decide how often to take a measurement. • Compare not only based on physical properties but also on knowledge gained through previous enquiry. • Make a range of relevant observations linked to the question • Measure using standard units using equipment that has scales involving decimals (according to age-related mathematics), and take repeat readings where necessary.
<p>Record (Pink)</p>	<p>Gathering and recording data to help in answering questions</p> <ul style="list-style-type: none"> • Record data in simple prepared tables, tally charts, pictorially or by taking photographs • Sort objects and living things into two group using a basic Venn diagram or simple table 	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>	<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written</p>

	<ul style="list-style-type: none"> • Present what they have learnt verbally, using pictures or block diagrams. 	<ul style="list-style-type: none"> • Prepare own tables to record data. • Sort objects and living things into groups using intersecting Venn and Carroll diagrams • Present what they learnt verbally, using simple scientific language or using labelled diagrams, bar charts, or time graphs 	<p>forms such as displays and other presentations</p>
<p>Evaluate (Red)</p>	<p>Using their observations and ideas to suggest answers to questions</p> <ul style="list-style-type: none"> • Talk about the number of objects in each classification group i.e. which has more or less. • Answer their questions using simple sentences using their observations or measurements. 	<p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Using straightforward scientific evidence to answer questions</p>	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations</p>

		<ul style="list-style-type: none">• Spot patterns in the classification data, particularly two criteria with no examples - e.g. there are no living things with wings and no legs.• Answer questions using simple scientific language and refer directly to their evidence when answering their question.• Suggest improvement (e.g. a wider range of objects) and suggest new questions arising from the investigation.• Suggest limitations to research (e.g. only had one book) and suggest new questions arising from the investigation.• Suggest improvements (e.g. measurement method) and	
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		<p>suggest new questions arising from the investigation.</p> <ul style="list-style-type: none"> • Draw simple conclusions, when appropriate, for patterns -e.g. a flying insect with no legs might always crash land. • Where appropriate provide oral or written explanations for their findings. 	
Classify	Identifying and classifying	Identifying differences, similarities or changes related to simple scientific ideas and processes	