



Working Scientifically Skills Progression

This document shows how the working scientifically statements from the science National Curriculum for England are linked and built on from EYFS and across the three phases in Key Stage 1 and 2. To highlight the links, the working scientifically skills statements are grouped under the following broader skills definitions.

- Asking questions and recognising that they can be answered in different ways
- Making observations and taking measurements
- Engaging in practical enquiry to answer questions
- Recording and presenting evidence
- Answering questions and concluding
- Evaluating and raising further questions and predictions
- Communicating their findings

The working scientifically statements from the science National Curriculum for England are presented in bold. [Working scientifically statements that feature in more than one of the broader skills definitions are shown in blue.](#)

In the EYFS, the characteristics of effective learning from the Statutory Framework for the Early Years Foundation Stage are the foundations on which the working scientifically skills build in Key Stage 1.	<u>KS1 Science National Curriculum</u>	<u>LKS2 Science National Curriculum</u>
<p>While children are playing and exploring, teachers should be modelling, encouraging and supporting them to do the following:</p> <ul style="list-style-type: none"> • show curiosity and ask questions • make observations using their senses and simple equipment • make direct comparisons • use equipment to measure • record their observations by drawing, taking photographs, using sorting rings or boxes and, in Reception, on simple tick sheets 	<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • 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 	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests <ul style="list-style-type: none"> • 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

<ul style="list-style-type: none"> •use their observations to help them to answer their questions •talk about what they are doing and have found out •identify, sort and group. 		<ul style="list-style-type: none"> ● recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● 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 or to support their findings.
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NB - The National Curriculum statements in blue in these tables indicate that they feature more than once.

	Nursery	Reception	Y1	Y2	Y3	Y4
Asking questions and recognising that they can be answered in different ways.	Asking simple questions. <ul style="list-style-type: none">• While exploring the world, the children develop their ability to ask questions.• The children answer questions developed with the teacher through questioning in provision and adult led activities.• Discuss resources that helped us find answer enquiry questions.		Asking simple questions and recognising that they can be answered in different ways. <ul style="list-style-type: none">• While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.• The children answer questions developed with the teacher often through a scenario.• The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.		Asking relevant questions and using different types of scientific enquiries to answer them. <ul style="list-style-type: none">• The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions.• The children answer questions posed by the teacher.• Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.	
Making observations and taking measurements.	Observing closely. <ul style="list-style-type: none">• Children explore the world around them. They make simple observations to support similarities and differences.		Observing closely, using simple equipment <ul style="list-style-type: none">• Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate		Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	

	<ul style="list-style-type: none"> • Have interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. • Use appropriate equipment such as magnifying glasses and view finders. 	<p>senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.</p> <ul style="list-style-type: none"> • They begin to take measurements, initially by comparisons, then using non-standard units. 	<ul style="list-style-type: none"> • The children make systematic and careful observations. • They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.
Engaging in practical enquiry to answer questions.	<p>Identifying and classifying</p> <ul style="list-style-type: none"> • Children use their observations to identify objects, materials and living things. They sort and group these things, when given a criteria. • They use simple descriptions for the characteristics they used to identify a living thing. • Children use simple equipment such as magnifying glasses to help them answer questions asked by the teacher and to make simple observations. 	<p>Performing simple tests</p> <ul style="list-style-type: none"> • The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying • Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. • They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing. 	<p>Setting up simple practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> • The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. • They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Explanatory note</p> <p>A comparative test is performed by changing a variable that is qualitative e.g. the type of material, shape of the parachute. This leads to a ranked outcome.</p> <p>A fair test is performed by changing a variable that is quantitative e.g. the thickness of the material or the area of the canopy. This leads to establishing a causative relationship.</p> </div>
Recording and presenting evidence	<p>Gathering and recording data to help in answering questions</p> <ul style="list-style-type: none"> • The children record their observations e.g. using photographs, videos, drawings or mark making/writing. • As a class they record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. • They classify using simple sorting rings. 	<p>Gathering and recording data to help in answering questions</p> <ul style="list-style-type: none"> • The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • They record their measurements e.g. using tables, pictograms, tally charts and block graphs. • They classify using simple tables and sorting rings 	<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> <ul style="list-style-type: none"> • The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add

			<p>headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.</p> <ul style="list-style-type: none"> Children are supported to present the same data in different ways in order to help with answering the question
<p>Answering questions and concluding</p>	<p>Using their observations and ideas to suggest answers to questions</p> <ul style="list-style-type: none"> Children use their experiences of the world around them to suggest appropriate answers to questions. During adult led discussions they are supported to relate these to their evidence e.g. observations they have made or information they have gained from experience. <p>Using their observations and ideas to suggest answers to questions</p> <ul style="list-style-type: none"> With support from an adult, children begin to recognise patterns from their data. 	<p>Using their observations and ideas to suggest answers to questions</p> <ul style="list-style-type: none"> Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. <p>Using their observations and ideas to suggest answers to questions</p> <ul style="list-style-type: none"> The children recognise patterns from their data. 	<p>Using straightforward scientific evidence to answer questions or to support their findings.</p> <ul style="list-style-type: none"> Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence. Identifying differences, similarities or changes related to simple scientific ideas and processes Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <ul style="list-style-type: none"> They draw conclusions based on their evidence and current subject knowledge.
<p>Evaluating and raising further questions and predictions</p>	<p>Children make simple predictions from what they already know from experience.</p>	<p>Children make predictions from what they already know from experience. They explain why they think that.</p>	<p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <ul style="list-style-type: none"> They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry