

Progression of Working Scientifically Skills

NC statements in bold

Scientific Enquiry	Questioning NC Statement	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Questioning	Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world.	Ask simple questions stimulated by their exploration of their world	Ask simple questions about their experiences and observations of objects, living things or events and with help use these observations to suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways	Ask relevant questions. Use different types of enquiry to answer these.	Ask relevant questions that can be explored/investigated further using different types of science enquiry	Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment/test	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables, where necessary
Observe Measure NC Statement		Observe closely using simple equipment		Make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and data loggers.		Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate		
Observe and Measure	Respond to prompts by making some suggestions about how to make an observation. Use senses and simple equipment to make observations. Talk about what happens and record using words and pictures.	Make measurements using non-standard units of measure Observe objects, living things, events and the world around them closely, using their senses and simple equipment	Make measurements using non-standard and standard units of measure Use equipment, provided for observation and measuring, correctly Observe closely	Take simple accurate measurements and/or careful observations using whole number standard units relevant to questions or ideas under investigation Use a range of equipment for measuring and observing, including thermometers and data loggers	Take accurate measurements using more complex standard units and parts of units Choose from a range provided, appropriate equipment for measuring and observing including thermometers and data loggers Make systematic and careful observations of objects, living things and events	Take measurements using a range of scientific equipment with increasing accuracy and precision identifying the ranges and intervals used With help recognise that some measurements and observations may need to be repeated	Decide whether it is appropriate to repeat observations or measurements and explain how this impacts on data collection Choose and use correctly appropriate equipment to support observation and data collection with increasing accuracy	
Planning and Performing Tests NC statement		Perform simple tests		Set up simple practical enquiries, comparative and fair tests		Plan different types of scientific enquiries to answer questions, including recognising and controlling variables, where necessary		

	Planning and Performing Tests	Ask questions based on exploration of the world around them. Respond to prompts by making some suggestions about how to find an answer	Perform simple tests to explore a question or idea suggested to them, with support	Identify things to measure or observe that are relevant to the questions or ideas they are investigating using a simple test Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating	Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating, with support	Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating Identify one or more control variables from those provided when conducting a fair test	Plan enquiries deciding when it is appropriate to carry out a fair test or another type of practical enquiry from a range suggested Identify one or more control variables in investigations when conducting a fair test	Recognise significant variables in investigations selecting the most suitable to investigate controlling variables where appropriate Recognise which type of practical enquiry is most appropriate to the question or idea being investigated, before planning and carrying out the enquiry
	Identifying and Classifying NC statement		Identify and classify		Identify differences, similarities or changes related to simple scientific ideas and processes		Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
	Identifying and Classifying	Children know about similarities and differences in relation to places, objects, materials and living things.	Recognise basic features, similarities and differences of objects or living things Sort and group objects or living things in different ways	Make comparison between basic features or components of objects, living things or events to support identification and/or classification Sort and group objects, living things or events on the basis of their observations and explain why	Identify and group objects, living things, processes or events by linking them to the characteristics of known objects, living things, processes or events	Identify differences, similarities or changes related to simple scientific ideas or processes and more complex groups of objects, living things and events	Classify objects, living things and events creating and using simple tables, keys or data bases with support	Use tables, keys and data bases to classify or identify specific objects, living things or events by their characteristics Begin to identify some positives and some limitations of specific forms of classification
	Gathering and Recording Data NC statement		Gather and record data to help in answering 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		Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
	Gathering and Recording Data	Begin to record data in simple templates	Present evidence they have collected in simple templates provided for them to	Gather and record data in appropriate ways with increasing independence to	Gather and present evidence and data using simple scientific language and vocabulary as writing,	Gather and present simple scientific data in a variety of ways as Year 3 including tables and bar charts	Select appropriate ways of gathering and presenting scientific data from models, writing,	Decide on the most appropriate formats to present sets of scientific data such as using line

		<p>help in answering questions</p> <p>Draw or photograph evidence and label with support</p>	<p>help in answering questions</p>	<p>drawing, labelled diagrams, display, through ICT, keys, bar charts or tables (using ranges and intervals chosen for them) to help in answering questions</p>	<p>where intervals and ranges agreed through discussion, to help in answering questions</p>	<p>drawing, display, through ICT, tables or graphs (choosing appropriate ranges and intervals)</p> <p>Use correct scientific symbols where appropriate in recording</p>	<p>graphs for continuous variables</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p>
Drawing Conclusions and Reporting NC statement		<p>Use observations and ideas to suggest answers to questions</p>		<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Use straightforward scientific evidence to answer questions or to support their findings</p>		<p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments</p>	
Drawing Conclusions and Reporting	<p>Begin to use simple features to compare objects, materials and living things.</p> <p>Identify what has changed when observing objects, living things or events.</p> <p>Talk in simple terms about what might happen based own experiences.</p> <p>Noticing 'which worked best' – simple</p>	<p>Use their ideas to suggest answers to questions</p> <p>Say what has changed when observing objects, living things or events</p> <p>Respond to suggestions to connect what has been observed with possible further actions or observations</p> <p>Present findings in simple templates</p>	<p>Use their observations and ideas to suggest answers to questions and to make predictions</p> <p>Respond to suggestions to identify some evidence needed to answer a question</p> <p>Use understanding of what has been observed or own experience to predict outcomes of further actions or observations</p>	<p>Use straightforward scientific evidence to answer questions and make predictions</p> <p>Say whether what happened was what they expected, acknowledging any unexpected outcomes</p> <p>Use results of enquiries to consider whether they meet predictions and explain why</p> <p>With help use results, observations or own experience to prompt</p>	<p>Use straightforward scientific evidence to support their findings, make further predictions and explain their findings</p> <p>Identify scientific evidence they have used in drawing conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>Recognise when scientific evidence is for or against an argument</p> <p>Recognise when scientific evidence supports an idea or not and use this to support predictions</p> <p>Use test results to draw conclusions, recognising that the test may need improvements to improve reliability</p> <p>Use test results to prompt new questions and make</p>	<p>Identify scientific evidence that has been used to support or refute ideas or arguments</p> <p>Recognise scientific questions that do not yet have definitive answers</p> <p>Provide straightforward explanations for differences in repeated measurements or observations</p> <p>Use test results to make predictions for setting up further comparative and fair tests</p>

		<p>comparative statements.</p>	<p>provided for them or orally</p> <p>Draw or photograph evidence and label with support</p>	<p>Report on and record findings as drawings, photographs, labelled diagrams, orally, as displays, or in simple prepared tables or charts</p>	<p>new questions and predictions for a further test</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions with support/as a group</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables with support/as a group</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables</p>	<p>predictions for setting up further tests</p> <p>Present findings in written form, displays and other presentations including orally, explaining results and conclusions drawn from results</p> <p>Identify causal relationships in reporting outcomes where appropriate</p>	<p>Compare their results with others and give reasons why they may be different</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of results in oral and written form such as displays and other presentations</p>
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