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	 Questioning	 Observing	 Testing	 Measuring	 Identify and classify	 Recording	 Reporting	 Concluding	 Researching
1	Ask simple questions about what they are learning. e.g. Does it snow in Autumn?	Observe closely, and with guidance, begin to notice patterns and relationships. e.g. Observe how a tree changes throughout the year	Perform simple tests. e.g. test whether materials are waterproof or not	Use simple measurements (non – standard units) e.g. measure the length of different leaves with counters	Identify by noticing simple features that can be compared, including objects, materials and living things. e.g. group animals from a zoo	Gather and record data to help in answering questions. e.g. record whether items sink or float	Talk about what they have found out. e.g. I noticed that bigger trees lose more leaves Use appropriate scientific language to talk about what they have found out	Use their ideas and knowledge to suggest answers to questions e.g. what is the season? I know that it is winter in this picture because I can see snow and there are no leaves on the trees.	

									
2	<p>Explore ideas and raise different kinds of questions.</p> <p>Know that questions can be answered in different ways</p> <p>e.g. What material would make a good bag?</p>	<p>Observe carefully, using simple equipment.</p> <p>e.g. magnifying glasses or digital microscopes</p> <p>Observe changes over time.</p> <p>e.g. observe how a seed changes as it grows into a plant</p>	<p>Use simple equipment (e.g. beakers, funnels) to perform tests</p> <p>e.g. test to see what environment seeds grow best in (indoor, outdoor, light, dark etc)</p>	<p>Use simple measurements and equipment e.g hand lenses, timers.</p> <p>Measure how long it takes for a seed to grow into a plant (such as cress)</p>	<p>With help, classify objects and living things by deciding how to sort and group them.</p> <p>e.g. group living, non-living and things that have never been alive based on their characteristics</p>	<p>Use simple equipment to gather and record data.</p> <p>e.g. tape measure, stop watch</p> <p>Record and communicate their findings in a range of ways</p> <p>e.g. record data in a simple table</p>	<p>Talk about what they have found out and how they found it out.</p> <p>Present this in a variety of ways</p> <p>Use appropriate scientific language to talk about what they have found out</p> <p>e.g. I noticed that the plant didn't grow in the cupboard because there was no sunlight.</p>	<p>Use their observations and ideas to suggest answers to questions</p> <p>e.g. I observed that cardboard wasn't waterproof so it would not make a good bag.</p>	<p>Use simple secondary sources to find answers.</p> <p>e.g. use given pages of textbooks or given websites to research what are the most common British plants</p>
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	<p>Ask relevant questions.</p> <p>When answering questions, use straightforward</p>	<p>Make systematic observations.</p> <p>Collect data from their own</p>	<p>Set up simple practical enquiries, comparative and fair tests.</p>	<p>Take measurements using equipment (such as data</p>	<p>Classify and present data</p> <p>e.g. in a given table</p>	<p>Gather, record, classify and present data in a variety of ways to help in</p>	<p>Report on findings including oral and written explanations</p>	<p>Use straightforward scientific evidence to support findings.</p>	<p>Use secondary sources to help them find answers to questions</p>

	<p>scientific evidence to support.</p> <p>e.g. the nutritional value of fruit is higher than chocolate because there are higher amounts of vitamins and less fat.</p>	<p>observations and measurements.</p> <p>e.g. children can notice patterns in the size of shadows by using standardised measurements for length.</p>	<p>e.g. following teacher scaffolding and instructions children can set up the equipment needed, such as measuring out equal amounts of liquid.</p>	<p>loggers and thermometers)</p>	<p>Talk about criteria for grouping, sorting and classifying; and use simple keys.</p> <p>e.g. know how a 2 circle Venn diagram works</p>	<p>answering questions.</p> <p>e.g. labelled diagrams and drawings, complete a table with headings and results</p>	<p>e.g. written explanations of what they have observed and found out (can be a scaffolded sentence.)</p>	<p>Use results to draw simple conclusions and make predictions for new values</p> <p>e.g. if watering the plant 3 times a day is too much, I predict that 2 times a day will be enough and 4 will also be too much.</p> <p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</p>	<p>not answered through practical investigations.</p> <p>e.g. Why do different types of vitamins keep us healthy and which food can we find them in? - use internet sources and packaging to research</p>
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4	<p>Ask appropriate questions and use different types of scientific enquiries to answer them or support their findings.</p> <p>e.g. following an investigation go back to answer questions</p>	<p>Make systematic and careful observations.</p> <p>e.g. observe over time and identify plants and animals in their habitats and how the habitat changes throughout the year.</p> <p>They should 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. e.g. how long should be observe an ice cube for to see if it melts?</p>	<p>Recognise when a simple fair test is necessary and help to decide how to set it up.</p> <p>Make decisions about the most appropriate type of scientific enquiry they might use to answer question.</p> <p>e.g. children come up with hypotheses and choose how they will prove or disprove them following their own methods,</p>	<p>Take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>e.g. record to 2 decimal places</p>	<p>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</p> <p>e.g. what is the same about opaque materials?</p>	<p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p>	<p>Suggest improvements and raise further questions</p> <p>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>e.g. I predict that lemonade will affect tooth enamel as there is a high sugar content and I have observed</p>	<p>They should recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations</p> <p>e.g. researching melting points of metals</p>

		Identify differences, similarities or changes related to simple scientific ideas and processed	such as testing if materials are opaque or not by shining a torch through them.					that sugar rots our teeth.	
									
5	<p>Answer questions using scientific vocabulary.</p> <p>Ask a wide variety of relevant questions.</p>	<p>Make their own decisions about what observations to make.</p> <p>e.g. what could be observed over time in the school environment?</p>	<p>Plan different types of scientific enquiries to answer questions, including recognising and variables where necessary</p> <p>e.g. class question – does everything dissolve? Children are given a variety of items to try to dissolve, they have to</p>	<p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>e.g. Select measuring equipment to give the most precise results from ruler, tape measure, trundle wheels, force metres with suitable</p>	<p>Use classification keys</p> <p>Use and develop keys and other information records to identify, classify and describe living things and materials.</p>	<p>Record data and results using scientific diagrams and labels, classification keys, tables, bar and line graphs</p>	<p>Report and present findings from enquiries, including conclusions in oral and written forms such as displays and other presentations</p>	<p>Draw their own conclusions</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>e.g. based on what I know, I hypothesise/ predict that...</p>	<p>Recognise which secondary sources will be most useful to research their ideas</p> <p>e.g. choosing reliable websites and current research (not outdated or disproven information)</p>

			choose the controlled variables e.g. stir each one x amount of times, same amount of each item, water is the same temperature	scales for a given object.					
									
6	<p>Ask their own questions about scientific phenomena.</p> <p>e.g. how can we hear thunder? A phenomenon is simply an observable event, examples include: sunrise, weather, fog, thunder, tornadoes; biological processes, decomposition, germination; physical processes, wave propagation,</p>	<p>Make their own decisions about what observations to make, what measurements to use and how long to make them for.</p> <p>e.g. what observations could we make about an animal? (such as changes in height, weight) how long would this take (months, years) how could we measure this?</p>	<p>Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</p> <p>e.g. can explain what would happen is variables weren't controlled and why this</p>	<p>Choose appropriate equipment to make precise measurements and explain how to use it accurately.</p> <p>e.g. use protractors and rules with precisions. Measure to 3 decimal places.</p>		<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Decide how to record data from a choice of familiar approaches.</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> <p>Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</p> <p>e.g. line of best fit</p>	<p>Begin to separate opinion from fact</p> <p>Talk about how scientific ideas have developed over time.</p> <p>e.g. how has Darwin's work informed current thinking?</p>

	erosion; tidal flow, and natural disasters. Answer questions in detail using scientific evidence and vocabulary.	(photographs, tape measures and scales)	would be unfair					Use their results to identify when further tests and observations might be needed.	
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