King Edward Primary School Science Skills Progression

Asking questions and carrying out fair and comparative tests

F1	F2	Y1	Y2	Y3	Y4	Y5	Y6
Ask simple questions and perform simple tests with support.		**Ask simple questions and recognise that they can be answered in different ways. Perform simple tests.**		**Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests with simple predictions.**		**Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Use test results to make predictions to set up further comparative and fair tests.**	
	Describe and comment on things they have seen whilst outside including plants and animals	Explore the world around them and ask simple questions and recognise that they can be answered in different ways such as: ○ Why are flowers different colours? ○ Why do some animals eat meat and others do not?	Explore the world around them leading them to ask some simple scientific questions and why they might happen such as: ○ Why do some trees lose their leaves in Autumn and others do not? ○ How long are roots of tall trees? ○ Why do some animals have underground habitats?	Explore the world around them leading them to ask some simple scientific questions and why they might happen such as: ○ Why do shadows change during the day? ○ Where does a fossil come from?	Explore the world around them leading them to ask some simple scientific questions and why they might happen such as: ○ Why are steam and ice the same thing? ○ Why is the liver important in the digestive systems? ○ What do we mean by 'pitch' when it comes to sound?		
Talk about how to care for living things Talk about different forces they can feel Talk about what they see, using a wide vocabulary	Name and describe some plants and animals Talk about the weather and seasonal features	Explain to someone what has been learned from an investigation they have been involved with and draw conclusions from the answers to the questions asked	Talk about the aim of tests	Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand, etc.	Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures	Explain what the variables are in a given enquiry and can isolate each one when investigating e.g. finding out how effective parachutes are when made with different materials	Explain which type of investigation is needed to suit particular scientific enquiry e.g. looking at the relationship between pulse and exercise Explain how to set up an enquiry-based investigation e.g. what is the relationship between oxygen and blood?
					When making predictions there are plausible reasons as to why they have done so	Make predictions based on information gleaned from investigations	Make accurate predictions based on information gleaned from their investigations and create new investigations as a result

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		Perform simple tests with support such as: Set up a test to see which materials keeps things warmest, know if the test has been successful and can say what has been learned	Perform simple practical tests using simple equipment with support and encourage independence such as: finding out about how seeds grow best Recognising a fair test and what it involves	Set up a fair test with different variables e.g. • the best conditions for a plant to grow • Test to see if their right hand is as efficient as their left hand • Test to see which type of soil is most suitable when growing two similar plants	Set up a fair test with more than one variable e.g. using different materials to cut out sound Carry out tests to see, for example, which of two instruments make the highest or lowest sounds and to see if a glass of ice weighs the same as a glass of water	Set up a fair test when needed e.g. which surfaces create most friction? Set up an enquiry-based investigation e.g. find out what adults / children can do now that they couldn't when a baby or finding out which materials dissolve or not Create new investigations which take account of what has been learned previously	Set up a fair test when needed e.g. does light travel in straight lines? Know and explain what the variables are in a given enquiry and can isolate each one when investigating
			Draw conclusions from fair tests and explain what has been found out	Draw conclusions from fair tests and explain what has been found out	Draw conclusions from fair tests and explain what has been found out	Draw conclusions and justify which variable has been isolated in scientific investigation	Draw conclusions and justify which variable has been isolated in scientific investigation

Observing and Measuring Changes

F1	F2	Y1	Y2	Y3	Y4	Y5	Y6
Observe the world around them.		**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 growth and decay over time Care for animals and take part in first-hand scientific exploration of animal life cycles	Observe and interact with natural processes such as: ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water	Observe and interact with the natural and human world around them Observe and talk about changes over time Observe closely, using simple equipment	Observe and interact with the natural and human world around them Observe and talk about changes over time using scientific vocabulary Make careful observations using simple measurements and equipment	Observe at what time of day a shadow is likely to be at its longest and shortest Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens, etc.	Observe changes of decay over time.		

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	Observe the natural world and observe how animals behave different as the seasons change						
		Use their observations and ideas to suggest answers to questions	Use their observations and ideas to suggest answers to questions				
	Draw pictures of the natural world including animals and plants Note and record the weather			Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Explanations set out clearly why something has happened and its possible impact on other things
Use different mechanical equipment for children to play with (wind-up toy)			Use equipment such as thermometers and rain gauges to help observe changes to local environment as the year progresses or use microscopes to find out more about small creatures and plants	Use equipment such as a thermometer to measure temperature and know there are two main scales used to measure temperature	Use equipment such as a thermometer to measure temperature and know there are two main scales used to measure temperature	Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons)	Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion
		Use measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken	Use measures (within Year 2 mathematical limits) to help find out more about the investigations they are engaged with	Use measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning	Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning	Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass	Use all measurements as set out in Year 6 mathematics (measurement),

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Identifying, Classifying, Recording and Presenting Data

F1	F2	Y1	Y2	Y3	Y4	Y5	Y6
Talk about ideas and findings.		**Identify and classify. 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.**	
Use all senses Explore how different materials sink and float Explore how you can shine light through different materials and not others (investigate shadows) Combine different ingredients and then cooling/heating (cooking)	Use all senses to explore the natural world around them	Talk about and use all senses to explore the natural world	Talk to peers about what has been found out	Be confident to stand in front of others and explain what has been found out.	Be confident to stand in front of others and explain what has been found out e.g how sugar breaks down enamel on teeth		
		Identify and classify living things (plants)	Identify and classify everyday materials Classify or group things according to a given criteria, e.g. deciduous and coniferous trees Sort and group different types of animals Sort, group, gather and record data in a variety of ways to help in answering questions	Identify differences, similarities or changes related to simple scientific ideas and processes Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens	Group information according to common factors e.g. materials that make good conductors or insulators	Able to give an example of something focused on when supporting a scientific theory e.g. how much easier it is to lift a heavy object using pulleys	Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats
		Gather and record data to help in answering questions	Gather and record data to help in answering questions	Gather and record information using a chart, matrix or tally chart, depending on what is most sensible	Gather and record information using a chart, matrix or tally chart, depending on what is most sensible	Keep an on-going record of new scientific words that they have come across for the first time	Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific investigations

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			Record data using simple diagrams, pictograms, tally charts and simple tables				
				Present findings using written explanations and include diagrams when needed Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings Know how to use a key to help understand information presented on a chart	Present findings using written explanations and include diagrams when needed Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings Use a data logger e.g to check on the time it takes ice to melt to water in different temperatures	Use diagrams, as and when necessary, to support writing Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs	Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats

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Drawing Conclusions, Noticing Patterns and Presenting Findings

F1	F2	Y1	Y2	Y3	Y4	Y5	Y6
Communicate findings to others		**Use their observations and ideas to suggest answers to questions.**		**Use results to draw simple conclusions, make predictions, suggest improvements and raise further questions. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.**		**Report and present 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.**	
Children can create simple representations of people and objects				Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions		
				Amend predictions according to findings	Able to amend predictions according to findings		
				Be prepared to change ideas as a result of what has been found out during a scientific enquiry	Prepared to change ideas as a result of what has been found out during a scientific enquiry		
				Make sense of findings and draw conclusions which help them to understand more about scientific information	Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned Write up findings using a planning, doing and evaluating process	Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate Their explanations set out clearly why something has happened and its possible impact on other things	Clear about what has been found out from their enquiry and can relate this to others in class Their explanations set out clearly why something has happened and its possible impact on other things
						Is evaluative when explaining findings from scientific enquiry	Aware of the need to support conclusions with evidence

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Using Scientific Evidence and Secondary Sources of Information							
F1	**F2**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
				Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings.		**Identify scientific evidence that has been used to support or refute ideas or arguments.**	
				Use research to find out how reflection can help us see things that are around the corner Use research to find out what the main differences are between sedimentary and igneous rocks	Use research to find out how much time it takes to digest most of our food Use research to find out which materials make effective conductors and insulators of electricity	Frequently carry out research when investigating a scientific principle or theory	Frequently carry out research when investigating a scientific principle or theory