KILLIGREW PRIMARY AND NURSERY SCHOOL SCIENCE SKILLS PROGRESSION

Skill	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Posing Ideas and Asking Questions	Uses talk to connect ideas and explain what is happening as well as what might happen next. Uses talk to organise and play	Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. Asks questions to find out more to check they understand what has been said to them.	Asks simple questions and recognises that they can be answered in different ways.	Asks a range of questions and recognises that they can be answered in different ways. Recognises scientific and technical developments that help us.	Asks relevant questions and uses different types of scientific enquiries to answer them.	Explores and uses different question openers to ask questions. Uses different types of scientific enquiries to answer them. Explains the purposes of a variety of scientific and technological developments.	Explores and uses different question openers including consider, analyse, interpret, summarise and visualise. Uses their scientific experiences to explore ideas and raise different types of questions.	Uses their scientific experiences to explore ideas and raise different types of questions. Talks about how scientific ideas have developed over time Recognises the applications of specific scientific ideas.
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning Approaches	Thinks of own ideas. Chooses alternative ways to do things. Selects and uses activities and resources	Finds ways to solve problems. Explores new ways of doing things. Uses talk to help work out problems and	Performs simple tests. Follows instructions with adult support and guidance.	Performs a growing range of tests. Starts to suggest their own practical enquiries.	With increasing independence, sets up simple practical enquiries, comparative and fair tests.	Sets up simple practical enquiries, comparative and fair tests. Begins to make decisions about what observations to	Selects, plans and organises different types of scientific enquiries to answer a range of scientific questions.	Selects, plans and organises different types of scientific enquiries to answer a range of scientific questions.

	with help when needed.	organise thinking. Explains how things work and why they might happen.		Identifies things to measure or observe that are relevant to a scientific question.		make and how long to make them for.		Makes decisions about what observations to make, what measurements to use, how long to make them for and whether to repeat them.
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Gathering Equipment	Handles equipment and tools safely. Chooses the correct resources needed for a task. Uses one handed tools and equipment. Selects and uses activities and resources with help when needed.	Handles equipment and tools effectively. Develops their small motor skills so that they can use a range of tools competently, safely and confidently.	Uses the resources provided correctly. Makes appropriate choices from a limited range of resources.	Makes appropriate suggestions linked to resources needed. Uses simple measurements and equipment to gather data.	Chooses the type of simple equipment that might be used from a reasonable range.	Chooses the type of equipment that might be used from a growing range. Uses appropriate equipment and measurements with growing accuracy (cross curricular maths application).	Chooses the most appropriate equipment to make measurements and test hypotheses. Measures with accuracy (cross curricular maths application).	Understands the range of equipment available to make measurements or conduct tests. Chooses the most appropriate equipment to make measurements. Measures with accuracy (cross curricular maths application) and explains how to use the

								equipment accurately.
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Considering Variables	Develops their small motor skills so that they can use a range of tools competently, safely, and confidently.	Develops and explains simple ideas linked to cause and effect. Connects one idea to another.	Makes sensible suggestions about why a test is unfair.	Explains why a test is unfair and what might need to change.	Recognises why and when a simple fair test is needed. Explains the concept of fair testing.	Recognises why and when a fair test is needed. With some support, decides how to set up a fair test and control variables.	Recognises and controls variables where necessary. Explains which variables need to be controlled and why.	Rcognises when and how to set up comparative and fair tests. Recognises and controls a range of variables where necessary. Suggests improvements to fair testing processes.
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observing and Measuring	Makes simple observations about the world around them. Starts to compare objects, noticing similarities and differences.	Makes observations of animals and plants. Starts to explain why some things occur. Describes what they see, hear and feel while outside. Makes observations and	Observes changes over time closely using simple equipment.	Observes changes over time closely using simple equipment. Makes measurements using non-standard units (cross curricular maths expectations).	Makes systematic, accurate and careful observations (cross curricular maths expectations).	Makes systematic and careful observations. Makes accurate measurements using standard units Uses a range of equipment to make measurements accurately.	Takes measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision. Achieves the expected standard in data handling (cross	Takes measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision. Knows when to take repeat readings when appropriate.

	Talks about differences in materials and changes that they notice. Explores objects with similar and/or different properties. Talks about what they see using a range of vocabulary. Makes comparisons, between objects linked to size, weight, length and capacity.	draws picture of animals and plants.				Achieves the expected standard in data handling (cross curricular maths expectations).	curricular maths expectations).	Achieves the expected standard in data handling (cross curricular maths expectations).
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Utilising secondary sources	Recognises how information can be gathered from information	Knows that information can be retrieved from books and computers.	Uses simple secondary sources to find answers.	Uses a growing range of secondary sources to find answers (online articles, reference	Recognises when and how a range of secondary sources (including the internet and diagrams) help	Recognises when and how secondary sources (might help answer questions that cannot be answered	Recognises which secondary sources will be most useful to research their ideas.	Recognises which secondary sources will be most useful to research their ideas.

	books and computers.	Engages with non-fiction books. Listens to and talks about selected non-fiction books. Develops a familiarity with new knowledge and vocabulary.		books, videos, photographs or people)	answer questions that cannot be answered through practical investigations.	through practical investigations. Uses judgement to analyse the effectiveness of secondary sources.	Uses judgement to analyse the effectiveness of a growing range of secondary sources.	Uses judgement to analyse the effectiveness of a growing range of secondary sources and identifies and explores writer bias. Knows the difference between factual information and opinion.
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Recording and Presenting: • **Information** • **Evidence** • **Data**	Begins to give meaning to marks they draw and paint. Creates and experiments with symbols and marks, representing ideas of number. Tests their ideas.	Gives meaning to marks they make as they draw, write and paint. Creates simple representations of events, and objects. Returns to and builds on their previous learning, refining ideas and developing their	Gathers and records simple data to help in answer questions. With support, records findings in different ways (simple tables and diagrams).	Gathers and records simple data to help to answer questions. Completes simple tables, diagrams, pictograms and bar charts to record and display data. Talks about findings using everyday	Gathers and records data in a variety of ways to help answer questions. Creates simple tables, drawings and labelled diagrams to display, record and present findings.	Gathers and records data in a variety of ways to help answer a range of questions. Makes decisions about how to record and analyse the data. Chooses the most effective method to display data.	Records and displays data and results of increasing complexity. Suggests ways to improve the clarity of data display. Records and presents findings using scientific diagrams and labels,	Records and displays data and results of increasing complexity. Decides how to record data from a choice of approaches including scientific diagrams and labels, classification keys, tables, scatter graphs,

	Develops their own ideas and then decides which materials to use to express them.	ability to represent them. Write short sentences with words with known sound letter correspondences using a capital letter and a full stop.		terms and simple scientific language.	Utilises tally charts, Carroll diagrams, Venn diagrams, bar charts and tables to display and record data. Explains findings using information gathered.	Reports on findings from enquiries using scientific language. Uses oral and written methods to explain. Displays and presents results and conclusions.	classification keys, tables, scatter graphs, bar and line graphs.	bar and line graphs. Calculates the mean and median value where appropriate.
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Looking for Patterns	Makes links across areas of their learning drawing on experiences. Notices patterns and change. Talks about and identifies the patterns around them.	Looks closely at similarities, differences, patterns and change. Makes links and notices patterns in their experiences. Develops the ability to create simple groups and sequences. Explains simple cause and effect.	Uses some observable features to compare objects, materials and living things. Identifies objects with some guidance. Uses simple comparative language to describe changes,	Uses observable features to compare objects, materials and living things. Identifies and classifies objects with some guidance. Begins to notice how one variable affects another.	Uses observable features and other criteria to group, sort and classify in different ways. Creates simple keys and branching databases. Identifies differences, similarities or changes related to simple	Uses a range of criteria to group, sort and classify in different ways. Creates more complex keys and branching databases. Identifies differences, similarities or changes related to scientific ideas and processes.	Draws conclusions from causal relationships and patterns.	Develops keys and databases to identify, classify and describe living things and materials. Draws detailed conclusions from causal relationships and patterns. Conducts own research to add information to the conclusions drawn.

			patterns and relationships.	Uses comparative language to describe changes, patterns and relationships.	scientific ideas and processes.	Looks for changes, patterns, and relationships in data.		
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Explaining Results	Begins to understand 'how' and 'why' things work and happen. Starts to express a point of view and debates when they disagree using words as well as actions.	Answers 'how' and 'why' questions about their experience of events. Articulates their ideas and thoughts in well-formed sentences. Offers explanations for why things might happen.	Uses their observations and ideas to suggest answers to questions.	Explains what they have discovered and how they discovered it. Uses observations and ideas to suggest answers to questions.	Uses results to draw simple conclusions. Answers questions using appropriate level of knowledge and scientific vocabulary. Uses scientific evidence to support findings.	Uses results to draw conclusions Uses carefully chosen scientific language to discuss their ideas and communicate their findings.	Identifies scientific evidence to support or refute ideas and/or arguments. Uses scientific language and illustrations to discuss, communicate and justify their scientific ideas.	Draws clear conclusions and interpretations using scientific knowledge and understanding. Recognises and explains the limitations of data. Identifies scientific evidence that has been used to support or refute ideas or arguments.
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Evaluating Outcomes	Explains what they have	Develops a simple explanation by	With support, suggests whether what	Through questioning, suggests	Uses results to suggest	Uses results to suggest	Makes practical suggestions about how their	Makes clear and practical suggestions

	witnessed or experienced in a simple way. Talks about what they see using a wide range of vocabulary.	connecting ideas or events. Uses talk to help work out problems and organises thinking and activities to explain how things work and why they might happen.	happened was what they expected.	whether what happened was what they expected. Makes sensible suggestions about what they could have done differently.	improvements to a test. Raises further questions arising from the data.	improvements to a test. Raises questions arising from the data and starts to make predictions for new values within or beyond the data set collected.	working method could be improved. Uses the correct vocabulary to make suggestions i.e. effect, sample size. Uses test results to make predictions and to set up further comparative and fair tests.	about how their working method could be improved. Uses results to identify when further tests and observations might be needed. Makes sensible predictions and sets up further comparative and fair tests.