Science Progression and Coverage - scientific investigation skills progression

At Lord Street Primary School, we develop children's l curiosity to help them understand natural phenomena and events in the world around them. Science allows us to explain what is occurring, predict how things will behave and analyse the reason why. Our children are encouraged to ask their own scientific questions and suggest ways of finding the answer through a deepening understanding of the nature, process and methods of scientific enquiry. Throughout the primary curriculum children build up a body of key scientific knowledge and concepts which further promotes rational explanation and understanding of their world.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Practical skills	***Planning and predicting***	Ask questions about world around them. Suggest what might happen and how to test ideas.	Raised questions based on what they have observed. With help, raise some ideas and questions to investigate. Think about how to collect evidence. Suggest what might happen. Think about and discuss whether comparison is fair or unfair.	Respond to suggestions, with help put forward ideas about testing. Make predictions. With help, consider what constitutes a fair test. With help, plan and carry out a fair test.	Recognise why it is important to collect data to answer questions. Suggest questions that can be tested. Put forward ideas about testing and make predictions. With help, consider what constitutes a fair test.	Recognise that scientific ideas are based on evidence and creative thinking. Make predictions based on scientific knowledge. Suggest methods of testing including a fair test. Suggest how to collect evidence. Select suitable equipment.	Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations of phenomena. Make predictions based on scientific knowledge and understanding. Suggest methods for testing including fair testing. Ensure data collected is appropriate and sufficient.
	Investigating and observing	Make observations using appropriate senses. Use non-standard measures. Make simple comparisons and groupings.	Make observations and comparisons using simple equipment following simple instructions. Use first-hand experience and, with help, simple information sources to answer questions.	Make observations and comparisons with increased independence. Measure length, volume of liquid and time in standard measures using simple equipment. Use first-hand experience and simple information sources to answer questions.	Make relevant observations and comparisons. Make measurements of temperature, time weight, length and volume with increasing accuracy. Begin to think about why measurements may need repeating to check accuracy. With help, carry out a fair test recognising and explaining why it is fair.	Carry out a fair test explaining why it is fair. Understand why observations need to be repeated. Select information from provided sources.	Carry out fair test identifying key factors to be considered. Make a variety of relevant observations and measurements using simple apparatus correctly. Decide when observations and measurements need to be checked by repeating to give more reliable data. Select information from a range of sources.
	Recording, analysing and evaluating	Communicate findings in simple ways- pictorial and 1 or two sentences. Make oral contributions which can be added to class book. Collect evidence to try to answer a question.	Record findings in simple tables, tally charts and graphs (as covered in year 2 maths curriculum). Say what has happened and whether if it was what you expected. Draw simple conclusions.	Communicate findings in a variety of ways. Say whether what happened was expected. With help, identify simple patterns and suggest explanations.	Explain what the evidence shows in a scientific way and whether it supports predictions. Suggest improvement to their work.	Communicate findings in a variety of ways. Identify simple trends and patterns. Offer explanations for these trends and patterns. Communicate findings in tables bar charts and line graphs making appropriate use of ICT.	Communicate findings in tables, bar charts and line graphs while making appropriate use of ICT. Identify trends and data in results that do not fit the expected pattern. Provide explanation for differences in observations and measurements. Draw conclusions and communicate them in appropriate scientific language.

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						Draw conclusions and communicate them with appropriate scientific language. Suggest improvements to their giving reasons.	Make practical suggestions how their investigative work could be improved.
	Data handling method	• Pictogram • Block graph	• Bar Chart • Tally Chart • Sorting diagram	• Venn Diagram	• Caroll Diagram • Line graph – guided	• Independent use of line graph • Choosing most appropriate graph for purpose – continuous vs discrete data	• Pie Chart • Making own choice best way to communicate findings