Preston & Wingham Primary Schools Federation

Learning together, we grow kind hearts and healthy minds.

Skills Progression: Scientific Enquiry

Year	Ideas and Questions	Planning	Observing and presenting
EYFS Links	**Understanding the world:** Comments & asks questions about aspects of their familiar world such as the place where they live or the natural world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen & how things work. Developing an understanding of growth, decay and changes over time. Shows care &concern for living things & the environment. Looks closely at similarities, differences,patterns and change.		
1 &2	• Ask simple questions and recognise ways that they can be answered in different ways. • Recognise scientific and technical developments that help us.	• Perform simple tests or follows teachers instructions. • With guidance, suggest what they will do. • With guidance, identify things to measure or observe that are relevant to the question. • Use resources provided or chosen from a limited range. • Use simple measurements and equipment to gather data. • Suggest why a test is unfair.	• Observe closely (including changes over time), using simple equipment • Make measurements using non-standard units • Use simple secondary sources to find answers • Gather simple data to help answer questions. • Record findings in a range of ways, e.g. simple tables charts, diagrams, pictures, sorting circles, bar charts and templates. • Talk about their findings using everyday terms, text scaffolds or simple scientific language
3&4	• Ask relevant questions and using different types of scientific enquiries to answer them. • Explain the purposes of a variety of scientific and technological developments.	• Set up practical enquiries, comparative and fair tests. • Begin to make decisions about what observations to make and how long to make them for. • Begin to choose the type of simple equipment that might be used from a reasonable range. • Use appropriate equipment and measurements with reasonable accuracy • Recognises when a simple fair test is needed with help, decide how to set up a fair test and control variables.	• Make systematic and careful observations. • Make accurate measurements using standard units, using a range of equipment. • Recognise when and how secondary sources might help answer questions that can't be answered through practical investigations. • Gather and record data in a variety of ways. • Record and present findings using drawings, labelled diagrams, keys, tally charts, Caroll diagrams, Venn diagrams, bar charts and tables. • Report on findings from enquiries, in simple scientific language
5&6	• Use their scientific experiences to explore ideas and raise different types of questions. • Talk about how scientific ideas have developed over time • Recognise the application of specific scientific ideas.	• Select and plan different types of scientific enquiries to answer questions. • Make decisions about what observations to make, what measurements to use, how long to make measurements. • Choose the most appropriate equipment to make measurements • Explain how to use the equipment accurately. • Recognise when and how to set up comparative and fair tests • Recognise and controls variables where necessary (eg. Explains which variables need to be controlled and why)	• Take measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision. • Take repeat readings when appropriate. • Recognise which secondary sources will be most useful to research their ideas. • Begin to separate opinion from fact. • Record data and results of increasing complexity, making own decisions about how to record. • Calculate mean value where appropriate • Record and present findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Report findings from enquiries, using relevant scientific language, in oral and written explanations such as displays and other presentations. •

Year	Looking for patterns	Explaining Results	Evaluating
1&2	• Use simple observable features to compare objects, materials and living things. • Identify and classify (decides how to sort and group objects). • With guidance, begin to notice changes (ie. Cause and effect), patterns and relationships (ie. How one variable affects another)	• Talk about what they have found out and how they found it out. • Use their observations and ideas to suggest answers to questions. • Use comparative language to describe changes, patterns and relationships.	• With support, suggest whether or not what happened was what they expected. • With support, suggest different ways they could have done things.
3&4	• Use observable and other criteria to group , sort and classify in different ways (including simple keys and branching databases)	• With help, use results to draw simple conclusions and answer questions using appropriate level of knowledge. • Use straightforward scientific evidence to answer questions or support their findings. • Use relevant scientific language to discuss their ideas and communicate their findings.	• With support, use results to suggest improvements to what they have done. • With support, raise further questions (eg. Arising from the data) • With support, make predictions for new values within or beyond the data collected.
5&6	• Use and develops keys and other information records to identify, classify and describe living things and materials. • Identify conclusions, causal relationships and patterns.	• Draw valid conclusions, explain and interprets the results using scientific knowledge and understanding (eg. Recognizes limitations of data) • Identify scientific evidence that has been used to support or refute ideas or arguments. • Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas.	• Make practical suggestions about how their working method could be improved (eg. The effect of sample size on reliability) • Use results to identify when further tests and observations might be needed. • Use test results to make predictions and to set up further comparative and fair tests.