Scientific Enquiry Knowledge and Skills Progression 2020

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Questioning	While exploring the world, the children develop their ability to ask questions. Where appropriate, they answer these questions.	Building on previous years' learning The children answer questions developed with the teacher often through a scenario. The children are involved in planning how to use resources provided to answer the questions using different types of enquiry.	Building on previous years' learning The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions.	Building on previous years' learning Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work.	Building on previous years' learning Children independently ask scientific questions. The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables.	Building on previous years' learning They choose a type of enquiry to carry out and justify their choice. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.
Observing	They begin to take measurements, initially by comparisons. Explore the world around them and use their senses to describe what they notice.	Building on previous years' learning Take measurements using non-standard measures. Make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.	Building on previous years' learning The children make systematic and careful observations.	Building on previous years' learning They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	Building on previous years' learning Select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.	Building on previous years' learning During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).
Performing tests	Children to use practical resources to answer questions.	Build on previous years' learning The children use practical	Build on previous years' learning They plan investigations	Build on previous years' learning The children select from a	Build on previous years' learning Children use the scientific	Build on previous years' learning

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	They carry tests out: to classify, compare and make observations over time.	resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.	that they would like to carry out to answer questions. They gather evidence to answer the questions posed.	range of practical resources to gather evidence to answer questions. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.	
Gathering and recording data	The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.	Building on previous years' learning The children record their measurements e.g. using prepared tables, pictograms, tally charts and bar charts. They classify using simple prepared tables and sorting rings.	Building on previous years' learning The children sometimes decide how to record and present evidence. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.	Building on previous years' learning Children are supported to present the same data in different ways in order to help with answering the question. Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships.	Building on previous years' learning	Building on previous years' learning Children present the same data in different ways in order to help with answering the question.
Drawing conclusions	The children recognise 'biggest and smallest', 'best and worst' etc. from their data.	Building on previous years' learning Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence.	Build on previous years' learning The children draw conclusions based on their evidence and current subject knowledge. Children answer their own and others' questions based on observations they have made, measurements	Build on previous years' learning The children identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. Children use their evidence to suggest values for different	Build on previous years' learning They talk about how their scientific ideas change due to new evidence that they have gathered. They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy	Build on previous years' learning They talk about how new discoveries change scientific understanding. In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the

			they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.	items tested using the same method e.g. the distance travelled by a car on an additional surface. Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.	of measurements and the credibility of secondary sources used.	overall pattern; and explain their findings using their subject knowledge. They identify any limitations that reduce the trust they have in their data.