Staniland Academy Working Scientifically Progression

	ASKING & ANSWERING QUESTIONS	OBSERVATIONS	PLANNING & CARRYING OUT	GATHERING, RECORDING, COMMUNICATING	EVALUATING & CONCLUDING
FS	Children are helped / prompted to ask and answer questions in a variety of relevant contexts and in response to their explorations of the world.	Children observe closely, making simple observations and saying what they see in a variety of relevant contexts. They make simple comparisons, identifying similarities and differences in two or more objects or happenings.	Children use simple equipment provided by their teacher, as they explore the world. They carry out a variety of simple tests and explorations in a variety of contexts.	Children record their observations and communicate what they have learned in drawings and labelled diagrams. They communicate orally , in simple descriptions and explanations. They participate in class data collection.	Children draw simple conclusions, noticing and describing what has happened.
KS1	Children develop their ability to ask questions (such as what something is, how things are similar and different, the various ways things work, which alternative is better, how things change and how they happen). They sometimes answer questions developed with the teacher, often through a scenario. They are supported to learn & use different types of enquiry, which helps them to recognise that there are different ways in which questions can be answered.	Children make careful observations to support identification, comparison and noticing change. Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	Children use practical resources provided to gather evidence to answer questions They carry out tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Where appropriate they use secondary sources to help answer a question.	Children begin to take measurements, initially by comparisons, then using non-standard units. The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. They record their measurements individually, in groups or whole class e.g. using prepared tables, pictograms, tally charts and bar charts. They classify using simple prepared tables and sorting rings.	Children draw simple conclusions as they gather evidence, describing what they have observed happening They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.
LKS2	Children consider their prior knowledge when asking questions. They independently use a range of question stems, using them to generate a variety of questions. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They decide which type of enquiry to use to answer their questions	Children make systematic and careful observations. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	Children select from a 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. They identify when research from secondary sources will help them answer a question. In Fair Tests, children begin to recognise and control variables.	Children use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). Children are supported to present the same data in different ways in order to help with answering the question. They sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.	Children draw conclusions based on their evidence and current subject knowledge, answering their original question Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface. They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.

	QUESTIONING	OBSERVATION	PLANNING & CARRYING OUT	GATHERING, RECORDING, COMMUNICATING	EVALUATING & CONCLUDING
UKS2	Children independently ask a variety of scientific questions based on a range of contexts. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry.	They decide what observations or measurements to make over time and for how long. They record observations in a variety of ways with an audience in mind e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.	They choose a type of enquiry to carry out and justify their choice. Children identify appropriate practical resources needed to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.	Children 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). They select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs Children present the same data in different ways in order to help with answering the question. They decide how to record and present evidence as appropriate to an audience. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.	Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge. 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 of measurements and the credibility of secondary sources used. They identify any limitations that reduce the trust they have in their data.