St John & St James' C of E Primary School
Working Scientifically Skills Progression Document

EYFS				
Nursery				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Show curiosity and ask simple questions about the world around them.	Make observations using 5 senses and child initiated exploration.	Make direct comparisons Sort and group living things and objects based on observations. Use observations to recognise change and pattern.	Use observations to answer scientific questions. Observe living things, comparing differences and similarities	Make meaningful marks to communicate their observations. Listen attentively to others to gather data. Ask questions that are on topic.
Reception				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Asks questions to clarify their understanding of new learning.	Compare change over time within their concrete experience. Explore a range of measuring equipment, comparing 'more', 'less' and 'the same'.	Make comparisons using 'different', 'similar' and 'same' Identify, sort and group living things and objects. Use observations to recognise change and pattern. Compare these observations with others.	Talk about what they have done and what they have found out through observing patterns. Suggest why observed creatures behave the way they do. Review how well their experiments went and discuss changes to strategy if necessary	Talk about what they have done and what they have found out using scientific vocabulary learned. Use multimedia to represent findings. These include painting and drawings, as well as photographs. Ask questions to clarify their thinking and understanding.
KS1				
Year 1				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Ask simple questions and recognise they can be answered in different ways.	Children use their senses to make careful observations. Children observe to support their identification and classification skills, as well as comparison and change.	Children use their observations and testing to compare objects, materials and living things. Children carry out tests to classify, to carry out pattern seeking enquiries and observe over time.	Pupils suggest appropriate answers to questions supported by scientific evidence and links to world around them. Pupils start to think of further questions because of their enquiry.	Children record their findings using photographs, videos, drawings, tables, tally graphs and block charts. Children compare data using Venn diagrams.

	Begin to take measurements, using non-standard units.	Pupils use identification sheets to name living things. Pupils use practical resources provided to gather evidence to answer questions.	Talk about what they have done and what they have found out through observing patterns and suggest what changes they can make. Children recognise "biggest" and "smallest" "best" and "worst" from their data.	Children present their findings in written form, using scientific vocabulary. Classify using prepared tables and sorting rings.
Year 2				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Begin to find answers to their own scientific questions.	Use appropriate senses to make observations aided by equipment such as magnifying glasses. Begin to take measurements, using standard units including centimetres and metres.	Pupils sort and group objects, materials and living things, identifying their own criteria for sorting. Pupils describe the characteristics they used to identify a living thing. Pupils carry out comparative tests, as well as classification, observations over time and pattern seeking enquiries.	Pupils use their results to suggest further enquiries and ask questions. Identify how they would do their enquiry differently.	Children record their findings using line graphs, pictograms and bar charts. Children compare data using Carroll Diagrams. With support, communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary (displays, presentations, leaflets etc.) Classifying and identifying their own criteria for sorting

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KS2				
Year 3				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Ask relevant questions and use different types of scientific enquiries to answer them.	Make systematic and careful observations Use a range of equipment for measuring length, time.	Select from a range of practical resources to gather evidence to answer questions generated as a group or by the teacher. Pupils understand what makes a fair test. Follow a plan to carry out a simple test including: observations and tests to classify, comparative and simple fair tests; observations over time and pattern seeking.	Pupils answer their own and others' questions based on observations they have made, measurements they have taken or information gained from secondary sources. Interpret data to generate simple comparative statements based on their evidence. Identify naturally occurring patterns and causal relationships. Identify ways in which they adapted their method as they progressed.	With increased independence, pupils communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary (displays, presentations, leaflets etc.) Children record their findings using line graphs, pictograms and bar charts. Children compare data using Carroll Diagrams. Record measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings).
Year 4				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Given a range of sources, children decide for themselves how to gather evidence to answer a question. Children identify the type of enquiry they have chosen to answer their question.	Use a range of equipment for measuring temperature and capacity. Use a range of tools to support observations including thermometers.	Select from a range of practical resources to gather evidence to answer questions generated as a group. Pupils ensure they are carrying out fair tests. Pupils create their own systematic plan, to carry out a comparative or simple fair test.	Answer scientific questions, which are supported by scientific evidence and subject knowledge. Explain how their scientific ideas change due to new evidence that they have gathered. Ask further questions which can be answered by extending the same enquiry	Independently, communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary. Children record their findings using scatter graphs, line graphs, pictograms and bar charts. Children compare data using a range of comparative diagrams. Record observations e.g. using photographs, videos, pictures, labelled diagrams or writing.

			Use their evidence to suggest values for different items tested using the same method	Record measurements e.g. using tables, tally charts and bar charts (given templates, if required, children to label x and y-axis). Record classifications e.g. using tables, Venn diagrams, Carroll diagrams. With minimal support, children present the same data in different ways (group and partners).

Year 5				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Ask scientific questions independently based on prior scientific knowledge, experience and enquiries. Chose the type of scientific enquiry they have chosen to answer questions and justify their choice. Begin to use a range of resources to gather evidence.	Make careful and systematic observations with increased accuracy and precision. Use equipment, which use the most suitable scales for the enquiry being carried out including ruler, tape measure, and a force meter. Take increasingly precise measures using standard units. During an enquiry, pupils make decisions e.g., whether they need to repeat readings (fair testing) or increase the sample size.	Select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. Carry out a fair test, recognising and controlling variables where necessary. They look for patterns and relationships using a simple sample.	Pupils answer their own and others' questions based on observations they have made, measurements they have taken or information gained from secondary sources. When doing the above, they discuss whether other evidence (from secondary sources and their scientific understanding) supports or refutes their answer. Pupils discuss how their scientific ideas change due to new evidence they have gathered. Pupils identify results that did not fit the overall pattern (anomalies) and explain their findings.	Discuss and choose different ways on how they communicate their findings with minimal support to an audience both orally and in writing, using appropriate scientific vocabulary. Record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. Record classifications e.g. using tables, Venn diagrams, Carroll diagrams and beginning to use classification keys.

				With increased independence, children present the same data in different ways.
Year 6				
Asking Questions	**Observing Closely and Taking Measurements**	**Performing Simple Tests to Answer Enquiry Questions**	**Using observations and ideas to suggest answers to questions**	**Gathering and Recording Data to Help in Answering Questions**
Answer questions they have developed independently Recognise how secondary sources can be used to answer questions that cannot be answered through practical work. Use a wide range of resources to decide for themselves to gather evidence to answer a specific question.	During an enquiry, pupils independently make decisions e.g., whether they need to repeat readings or increase the sample size. Students independently suggest and access further secondary sources to draw conclusions and in order to get accurate data.	Carry out a fair test, recognising and controlling more than one variable. Pupils decide what observations or measurements to make over time and for how long.	In their conclusions, pupils identify causal relationships and patterns in the natural world from their evidence. Pupils identify results that did not fit the overall pattern (anomalies) and explain their findings.	Independently, choosing how record measurements based on relevance e.g. using tables, bar charts, line graphs and scatter graphs (using own titles and independently labelling y and x axis). Independently, choose how they communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary. Record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. Independently, children present the same data in different ways.