St Mary's CE Primary School - Working Scientifically KS2

Skills Progression: Science- Key Stage 2	Year 3	Year 4	Year 5	Year 6	End of Key Stage Expectations
Area 1 Predicting	Children identify what they are investigating and then make predictions using appropriate scientific vocabulary and justifying with a "because"	Children identify what they are investigating, decide whether their question is appropriate and then justify a prediction with appropriate scientific vocabulary and a "because".	Children identify what they are investigating, decide whether their question is appropriate and then justify a prediction with appropriate scientific vocabulary, references to prior learning and a "because".	Children identify what they are investigating, decide whether their question is appropriate and then justify a prediction with appropriate scientific vocabulary, references to prior learning, background information and further examples (world connections)	-planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary -taking measurement, using a range of scientific equipment, with increasing accuracy and precision -recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs -using text results to make predictions to set up further comparative and fair tests -using simple models to describe scientific ideas -reporting and presenting findings from enquires, including conclusion, casual relationships and explanations of
Planning	Children are able to plan a test in a fair manner so that what they are investigating is the only thing that changes. The word variable is used in conversations about keeping the test fair.	Children are able to plan a test in a fair manner so that what they are investigating is the only thing that changes. They are told what the variables are and decide how to control them.	Children are able to plan a test or survey appropriate to the task. They are aware of what variables are and can control them where necessary.	Children are able to plan a test or survey appropriate to the task. They control variables where necessary and know the importance of repeat testing to highlight any anomalous results.	
Observing	Children think about what sense they will be using to observe and how it could be measured . They think about appropriate units of measurement and what equipment will be necessary to be accurate. They consider the relevance of what they are observing and work systematically and carefully.	Children observe systematically and logically using scientific vocabulary where possible. They will use measuring apparatus relevant to the task. They will reflect on the level of accuracy at which they have worked.	Children observe systematically and logically using scientific vocabulary where possible. They will use measuring apparatus relevant to the task. They will reflect on the level of accuracy at which they have worked. They will consider doing repeat observations to explain anomalous results and whether a bigger / smaller sample size is appropriate.	Children observe systematically and logically using scientific vocabulary where possible. They will use measuring apparatus relevant to the task. They will reflect on the level of accuracy at which they have worked. They will consider just how many measurements are appropriate to ensure accuracy. They will consider doing repeat observations to	

				explain anomalous results and whether a bigger / smaller sample size is appropriate.	
Presenting	Children will be able to draw basic charts / graphs in order to show the results of their experiments. These should include bar charts, tally charts and pictograms. If recounting orally, children should try to use scientific vocabulary appropriate to the task.	Children will be able to draw basic charts / graphs in order to show the results of their experiments. These should include bar charts, tally charts and pictograms. If recounting orally, children will use scientific vocabulary appropriate to the task.	Children will select the most appropriate form of graphing / presenting data. Suitable diagrams can also be included for ease of explanation. This can be in the form of a graph or chart where data is numerical or can be in the form of a presentation where research has been carried out that leads to findings which need to be shared orally. Any graphs and charts should be done as accurately as possible.	Children will select the most appropriate form of graphing / presenting data. Suitable diagrams can also be included for ease of explanation. This can be in the form of a graph or chart where data is numerical or can be in the form of a presentation where research has been carried out that leads to findings which need to be shared orally. Any graphs and charts should be done to a high level of accuracy and they should be aware that the smaller the increments on an axis, the higher the level of detail will be.	
Concluding	Children consider what they have learned from their experiments and use comparative language to explain their findings. Children consider whether their original prediction was right and consider why this is so. Children consider what they could improve / adjust if they repeated the experiment at a later date.	Children consider what they have learned from their experiments and use comparative and scientific language to explain their findings. Children consider whether their original prediction was right and consider why this is so. Children consider what they could improve / adjust	Children consider what they have learned from their experiments and use comparative language to explain their findings. Children discuss patterns in any graphs or statistics that they have generated. Children consider whether their original prediction was right and consider why this is so.	Children consider what they have learned from their experiments and use comparative language to explain their findings. They consider whether their experiment has addressed their original question or whether further work is necessary. Children discuss patterns in any graphs or statistics that they have generated.	

		if they repeated the experiment at a later date.	Children consider what they could improve / adjust if they repeated the experiment at a later date. Children consider what other enquiries could begin based on their findings.	Children consider whether their original prediction was right and consider why this is so. Children consider what they could improve / adjust if they repeated the experiment at a later date. Children consider what other enquiries could begin based on their findings.	

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Evaluating	Children consider whether what happened was what they expected or not and consider why. They look at how a repeat investigation could be improved by making changes to the procedure / equipment.	Children consider whether what happened was what they expected or not and consider why. They look at how a repeat investigation could be improved by making changes to the procedure / equipment. Children consider whether the findings lead to further questions which could be investigated.	Children consider whether what happened was what they expected or not and consider why. Children look for anomalous results and try to explain them scientifically. They look at how a repeat investigation could be improved by making changes to the procedure / equipment. Children consider whether the findings lead to further questions which could be investigated.	Children consider whether what happened was what they expected or not and consider why. Children look for anomalous results and try to explain them scientifically. They look at how a repeat investigation could be improved by making changes to the procedure / equipment. Children consider whether the findings lead to further questions which could be investigated. Children consider whether they actually have enough evidence to draw conclusions or whether more research is necessary.	results, in oral and written forms such as displays and other presentations -identifying scientific evidence that has been used to support -planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary -taking measurement, using a range of scientific equipment, with increasing accu racy and precision -recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs -using text results to make predictions to set up further comparative and fair tests -using simple models to describe scientific ideas -reporting and presenting findings from enquires, including conclusion, casual relationships and explanations of results, in oral and written forms such

					as displays and other presentations -identifying scientific evidence that has been used to support

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