Rationale

This document has been produced in conjunction with the National Curriculum (DfE, 2013) and Statutory framework for the early years foundation stage (DfE, 2021)

Statements have been taken directly from the above documents, and have been categorised to coordinate specifically with the detail in the 'nature, processes and methods of science' section of the science curriculum.

Areas in grey indicate a 'non-statutory' element of the curriculum. Their inclusion allows a coherent, fluid transition between year groups, and thus ensures transparent and coherent progression throughout. Care has been taken to ensure that statements align as closely as possible to allow a clear view of progression. Consideration has been offered towards impact throughout – categories represent key areas of planning that a science teacher will consider when writing a single or unit of science lessons. For example, categories such as 'Setting up enquiries', 'Observing over time' and 'Testing and Gathering data' are directly relatable to elements of a science lesson. Key 'working scientifically' skills can therefore be identified, and attached to appropriate planning.

Where Ofsted (2011) identified ways in which primary schools can improve teaching standards from 'satisfactory' to 'outstanding' in science, it was highlighted that 'the most important focus for schools is to ensure that pupils are engaged and challenged by their work in science, particularly in scientific investigation and how science works'. Where a lack of understanding in 'working scientifically' progression may exist across primary schools in England, this document represents an important tool in raising this understanding, and identifying patterns in progression across the years at St Mary's.

References

Statutory framework for the early years foundation stage (DfE, 2021) *Setting the standards for learning, development and care for children from birth to five* *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974907/EYFS_framework_-_March_2021.pdf*
The National Curriculum in England (DfE, 2013)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/425601/PRIMARY_national_curriculum.pdf
Successful science, an evaluation of science education in England 2007-2010 (Ofsted, 2011). https://dera.ioe.ac.uk/2148/1/Successful%20science.pdf

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Questioning	Listen attentively and respond to what they hear with relevant questions. Make comments about what they have heard and ask questions to clarify their understanding.	Ask simple questions about the world around us. Begin to recognise that they can be answered in different ways.	Ask questions about the world around us. Recognise that they can be answered in different ways	Ask some relevant questions and use different types of scientific enquiries to answer them.	Ask relevant questions and use different types of scientific enquiries to answer them.	Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically	Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.
Setting up enquiries	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge	Begin to recognise ways in which they might answer scientific questions	Begin to recognise ways in which they might answer scientific questions	Begin to set up simple practical enquiries, comparative and fair tests Begin to make some decisions about which types of enquiry will be the best way of answering questions Begin to recognise when a simple fair test is necessary and help to decide how to set it up Begin to help make decisions about what observations to make, how long to make them for and the type of simple equipment	Set up simple practical enquiries, comparative and fair tests Make some decisions about which types of enquiry will be the best way of answering questions. Recognise when a simple fair test is necessary and help to decide how to set it up Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used	Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why Begin to make their own decisions about what observations to make, what measurements to use and how long	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why Make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to

				that might be used		to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately.	repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately.
Observing over time	Explore the natural world around them, making observations and drawing pictures of animals and plants	Begin to observe closely, using simple equipment.	Observe closely, using simple equipment.	Begin to make systematic and careful observations	Make systematic and careful observations	Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.
Pattern Seeking	Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	With guidance, begin to notice patterns and relationships	With guidance, begin to notice patterns and relationships	Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them	Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them	Begin to identify patterns that might be found in the natural environment.	Identify patterns that might be found in the natural environment.
Identifying, classifying and grouping	Know some similarities and differences	Identify and classify with some support	Identify and classify	Begin to identify differences, similarities or	Identify differences, similarities or	Begin to use and develop keys and other information	Use and develop keys and other information

	between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	To begin to observe and identify, compare and describe. Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them	Observe and identify, compare and describe. Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them	changes related to simple scientific ideas and processes. Begin to talk about criteria for grouping, sorting and classifying; and use simple keys	changes related to simple scientific ideas and processes. Talk about criteria for grouping, sorting and classifying; and use simple keys	records to identify, classify and describe living things and materials	records to identify, classify and describe living things and materials
Researching using secondary sources	Use and understand recently introduced vocabulary during discussions about stories, non-fiction, rhymes and poems and during role play.	To begin to use simple secondary sources to find answers	Use simple secondary sources to find answers.	Begin to recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	Begin to recognise which secondary sources will be most useful to research their ideas	Recognise which secondary sources will be most useful to research their ideas
Testing and Gathering Data	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	Perform simple tests with support. Gather and record data with some adult support, to help in answering questions Experience different types of scientific enquiries, including practical activities	Perform simple tests. Gather and record data to help in answering questions Experience different types of scientific enquiries, including practical activities	Begin to take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Participate in a range of scientific experiences to enable them to	Take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Participate in a range of scientific experiences to enable them to raise their own	Take measurements, using an increasing range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Begin to decide how to record data from a choice of	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Decide how to record data from a choice of familiar

		Use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests	Use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests	raise their own questions about the world around them Learn how to use new equipment, such as data loggers, appropriately	questions about the world around them Learn how to use new equipment, such as data loggers, appropriately	familiar approaches	approaches
Analysing and Presenting Data	Offer explanations for why things might happen	Begin to use their observations and ideas to suggest answers to questions Talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language.	Use their observations and ideas to suggest answers to questions Talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language.	Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences,	Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences,	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other

				similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings. Collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions With support, they should identify	similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings. Collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions With support, they should identify	presentations Identify scientific evidence that has been used to support or refute ideas or arguments Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Use their results to identify when further tests and observations might be needed	presentations Identify scientific evidence that has been used to support or refute ideas or arguments Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Use their results to identify when further tests and observations might be needed

				new questions arising from the data, making predictions for new values within or beyond the data they have collected, and finding ways of improving what they have already done.	new questions arising from the data, making predictions for new values within or beyond the data they have collected, and finding ways of improving what they have already done.		
Vocabulary	Early Adopter communication and language, and literacy goals	Begin to use simple scientific language Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.	Begin to use simple scientific language Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.	Begin to use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences Read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.	Use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences Read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time Read, spell and pronounce scientific vocabulary correctly	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time Read, spell and pronounce scientific vocabulary correctly