

Bolton-on- Swale St Mary's C of E Primary School
Science
Working scientifically – Skills Progression

Key:

Red text- non-statutory

Black text- National Curriculum/Early Learning Goals

↓	Recognise the best type of enquiry to answer a question	Choose equipment, select tests, use secondary sources to decide how to obtain accurate observations and measurements	Obtain observations and measurements using equipment and/or secondary sources	Record observations and measurements	Present observations and measurements	Draw conclusions and make explanations	Evaluate the data collected	Evaluate the process used (including next steps)
End of Reception Year	<ul style="list-style-type: none"> I can explore the natural world around me, making observations and drawing pictures of plants and animals I know some similarities and differences between the natural world around me and contrasting environments. I can draw on my experiences of what has been read in class I understand some important processes and changes in the natural world around me, including the seasons and changing states of matter 							
End of Year 1	<i>With help and encouragement I ask simple questions that begin with why, what if, how or when.</i>	<i>I make suggestions about how to do things when we plan a simple test.</i>	<i>With help, I use simple equipment and non-standard units to find things out.</i> <i>I observe using my senses.</i>	<i>With help, I can gather and record data to help me answer my questions.</i>		<i>I talk about what happened and/or what I saw.</i>		<i>I talk about what I did.</i>
End of KS1	I ask simple questions and recognise these questions can be answered in different ways.	<i>I decide with help, what to find out, observe or measure.</i>	I observe closely, using simple equipment <i>and non-standard units.</i> I can identify and classify. I can perform a simple test.	I gather data and record data to help me answer my questions. <i>I record what I have found out using e.g. words or pictures, tables or simple prepared formats.</i>		I use my observations and ideas to suggest answers to my questions.		<i>I talk about how I found out what I found out.</i>
End of Year 3	<i>I can ask questions and I recognise that there are different types of enquiry.</i>	<i>I can set up a simple practical enquiry and I am beginning to understand how to make a test fair.</i> <i>I make suggestions about what observations and measurements to make and what equipment I need.</i>	<i>I am beginning to make systematic and careful observations. I sometimes use standard units.</i> <i>With help I can use information sources provided to find things out.</i>	<i>I gather data and using a pre-prepared table I can record data.</i> <i>I record my findings using a drawing and/or words.</i>	<i>With help, I can present my data.</i>	<i>I can use my results when I talk about what happened.</i>		<i>I can talk about what went wrong!</i> <i>I have ideas about what else I would like to find out.</i>

End of Lower KS2	I ask relevant questions and use different types of scientific enquiries to answer them.	I can set up simple practical enquiries, comparative or fair tests. <i>I decide what observations and measurements to make and what equipment to use.</i>	I use a range of equipment (including thermometers and dataloggers). I make systematic and careful observations and take accurate measurements using standard units. <i>I use information sources provided to find things out.</i>	I gather, record and classify data in a variety of ways to help me answer my questions. I record my findings using simple scientific language, tables, drawings and labelled diagrams.	I present my data in a variety of ways <i>using e.g. Venn diagrams, bar charts, simple scatter graphs and keys.</i>	I use my results to draw simple conclusions and I make predictions for new values. I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and displays.		I suggest improvements to the way I carried out the enquiry. I suggest further questions to investigate.
End of Year 5	♦ <i>I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question.</i>	♦ <i>I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations.</i> ♦	<i>I use a range of equipment independently.</i> <i>The series of observations and measurements I take are adequate for the task.</i> <i>I use information sources provided to find things out.</i> <i>I identify possible risks to myself and others.</i>	<i>I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams.</i>	<i>I present the results (data and observations) in a range of formats e.g. bar and line graphs, simple scatter graphs, keys and frequency charts.</i>	<i>I draw conclusions from my data and observations.</i> <i>I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion.</i>	<i>I look at my results and decide if any observations or measurements are unsuitable.</i>	<i>I use what I have found out to suggest improvements to my work giving reasons.</i> <i>I can set up further questions to investigate.</i>
End of KS2	♦ <i>I ask relevant questions (containing scientific knowledge and understanding).</i> ♦ <i>I recognise which type of enquiry is best to answer a question.</i>	I can plan different types of science enquiries to answer questions. I recognise and control variables where necessary. <i>I decide what observations and measurements to make and what equipment to use (giving reasons) to make</i>	♦ I take measurements, using a range of scientific equipment with increasing accuracy and precision. I take repeat readings when appropriate. ♦ <i>I use relevant information sources to find things out</i>	I record data and results of increasing complexity using e.g. scientific diagrams and labels and tables. <i>I choose a method to suit the results, e.g. a two-column table.</i>	I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification keys.	From my data and observations I draw valid conclusions (i.e. consistent with the evidence) including causal relationships. I identify scientific evidence to support or refute the ideas or arguments for my conclusion.	<i>I look at my results and decide if any observations or measurements are unsuitable and need to be carried out again.</i> <i>I offer simple explanations for differences in results.</i>	I use my test results to make predictions to set up further enquiries e.g. comparative and fair tests <i>and suggest how my working methods could be improved, with reasons.</i>

		<i>my measurements and observations.</i>	<i>I identify possible risks to myself and others.</i>					
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