



# Thrapston Primary School Skills Progression

## Subject area: Science

### Working Scientifically

Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Understanding the World (The World)</b> Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them - from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.	<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Most children will be able to:</p> <ul style="list-style-type: none"><li>- ask simple questions and recognising that they can be answered in different ways;</li><li>observe closely, using simple equipment;</li><li>perform simple tests;</li><li>identify and classify;</li><li>use their observations and ideas to suggest answers to questions;</li></ul> <p>gather and record data to help in answering questions.</p>	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Most children will be able to:</p> <ul style="list-style-type: none"><li>ask relevant questions and use different types of scientific enquiries to answer them;</li><li>set up simple practical enquiries, comparative and fair tests;</li><li>make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers;</li><li>gather, record, classify and present data in a variety of ways to help in answering questions;</li><li>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables;</li><li>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;</li><li>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions;</li><li>identify differences, similarities or changes related to simple scientific ideas and processes</li><li>use straight forward scientific evidence to answer questions or to support their findings.</li></ul>	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Most children will be able to:</p> <ul style="list-style-type: none"><li>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;</li><li>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;</li><li>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;</li><li>use test results to make predictions to set up further comparative and fair tests;</li><li>report and presenting 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 presentations;</li><li>identify scientific evidence that has been used to support or refute ideas or arguments.</li></ul>			

## Fair and Comparative Tests

### ELG: Past and Present

Children at the expected level of development will: - Talk about the lives of the people around them and their roles in society; - Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class; - Understand the past through settings, characters and events encountered in books read in class and storytelling.

Asking simple questions and recognising that they can be answered in different ways.

Performing simple tests.

Most children can:

- a explore the world around them, leading them to ask some simple scientific questions about how and why things happen;
- b begin to recognise ways in which they might answer scientific questions;
- c ask people questions and use simple secondary sources to find answers;
- d carry out simple practical tests, using simple equipment;
- e experience different types of scientific enquiries, including practical activities;
- f talk about the aim of scientific tests they are working on

Asking relevant questions and using different types of scientific enquiries to answer them.

Setting up simple practical enquiries, comparative and fair tests.

Most children can:

- a start to raise their own relevant questions about the world around them in response to a range of scientific experiences;
- b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;
- c recognise when a fair test is necessary;
- d help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used;
- e set up and carry out simple comparative and fair tests.

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

Using test results to make predictions to set up further comparative and fair tests.

Most children can:

- a with growing independence, raise their own relevant questions about the world around them in response to a range of scientific experiences;
- b with increasing independence, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;
- c explore and talk about their ideas, raising different kinds of scientific questions;
- d ask their own questions about scientific phenomena;
- e select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;
- f make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them;
- g plan, set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary;
- h use their test results to identify when further tests and observations may be needed;
- i use test results to make predictions for further tests.

## Observing and Measuring Changes

Children at the expected level of development will: - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps; - Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class; - Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and - when appropriate - maps.	<p>Observing closely, using simple equipment.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a observe the natural and humanly constructed world around them;</li> <li>b observe changes over time;</li> <li>c use simple measurements and equipment;</li> <li>d make careful observations, sometimes using equipment to help them observe carefully.</li> </ul>	<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a make systematic and careful observations;</li> <li>b observe changes over time;</li> <li>c use a range of equipment, including thermometers and data loggers;</li> <li>d ask their own questions about what they observe;</li> <li>e where appropriate, take accurate measurements using standard units using a range of equipment.</li> </ul>	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a choose the most appropriate equipment to make measurements and explain how to use it accurately;</li> <li>b take measurements using a range of scientific equipment with increasing accuracy and precision;</li> <li>c make careful and focused observations;</li> <li>d know the importance of taking repeat readings and take repeat readings where appropriate.</li> </ul>
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## Identifying, Classifying, Recording and Presenting Data

Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants; 15 - 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; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	<p>Identifying and classifying.</p> <p>Gathering and recording data to help in answering questions.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a use simple features to compare objects, materials and living things;</li> <li>b decide how to sort and classify objects into simple groups with some help;</li> <li>c record and communicate findings in a range of ways with support;</li> <li>d sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.</li> </ul>	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a talk about criteria for grouping, sorting and classifying;</li> <li>b group and classify things;</li> <li>c collect data from their own observations and measurements;</li> <li>d present data in a variety of ways to help in answering questions;</li> <li>e use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge;</li> <li>f record findings using scientific language. drawings, labelled diagrams, keys, bar charts and tables.</li> </ul>	<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a independently group, classify and describe living things and materials;</li> <li>b use and develop keys and other information records to identify, classify and describe living things and materials;</li> <li>c decide how to record data from a choice of familiar approaches;</li> <li>d record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar graphs and line graphs</li> </ul>
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<p>Drawing Conclusions, Noticing Patterns and Presenting Findings</p>	<p>Children at the expected level of development will:</p> <ul style="list-style-type: none"> <li>- Explore the natural world around them, making observations and drawing pictures of animals and plants; 15 - 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;</li> <li>- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>	<p>Using their observations and ideas to suggest answers to questions.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> notice links between cause and effect with support;</li> <li><b>b</b> begin to notice patterns and relationships with support;</li> <li><b>c</b> begin to draw simple conclusions;</li> <li><b>d</b> identify and discuss differences between their results;</li> <li><b>e</b> use simple and scientific language;</li> <li><b>f</b> read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1;</li> <li><b>g</b> talk about their findings to a variety of audiences in a variety of ways.</li> </ul>	<p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> draw simple conclusions from their results;</li> <li><b>b</b> make predictions;</li> <li><b>c</b> suggest improvements to investigations;</li> <li><b>d</b> raise further questions which could be investigated;</li> <li><b>e</b> first talk about, and then go on to write about, what they have found out;</li> <li><b>f</b> report and present their results and conclusions to others in written and oral forms with increasing confidence.</li> </ul>	<p>Reporting and presenting 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 presentations.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> notice patterns;</li> <li><b>b</b> draw conclusions based in their data and observations;</li> <li><b>c</b> use their scientific knowledge and understanding to explain their findings;</li> <li><b>d</b> read, spell and pronounce scientific vocabulary correctly;</li> <li><b>e</b> identify patterns that might be found in the natural environment;</li> <li><b>f</b> look for different causal relationships in their data;</li> <li><b>g</b> discuss the degree of trust they can have in a set of results;</li> <li><b>h</b> independently report and present their conclusions to others in oral and written forms.</li> </ul>
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<p>Using Scientific Evidence and Secondary Sources of Information</p>	<p>Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and - when appropriate - maps</p>		<p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> make links between their own science results and other scientific evidence;</li> <li><b>b</b> use straightforward scientific evidence to answer questions or support their findings;</li> <li><b>c</b> identify similarities, differences, patterns and changes relating to simple scientific ideas and processes;</li> </ul> <p>recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.</p>	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> use primary and secondary sources evidence to justify ideas;</li> <li><b>b</b> identify evidence that refutes or supports their ideas;</li> <li><b>c</b> recognise where secondary sources will be most useful to research ideas and begin to separate opinion from fact;</li> <li><b>d</b> use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas;</li> </ul> <p>talk about how scientific ideas have developed over time</p>
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