

## **Science at Stamford Bridge Primary School**

### **Intention**

In teaching science at Stamford Bridge Primary School, we are developing in our children:

- a positive attitude towards science and an awareness of its fascination;
- an understanding of science through a process of enquiry and investigation;
- confidence and competence in scientific knowledge, concepts and skills;
- an ability to reason, predict, think logically and to work systematically and accurately;
- an ability to communicate scientifically;
- the initiative to work both independently and in co-operation with others;
- the ability and meaning to use and apply science across the curriculum and real life.

We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's knowledge, skills, and understanding. Children are encouraged to ask, as well as answer, scientific questions and engage in a wide variety of problem solving activities. They have the opportunity to use a range of data, such as statistics, graphs, pictures, and photographs. They use ICT, role-play and discussions and they present reports to the rest of the class. Wherever possible, pupils are involved in 'real' scientific activities, for example, carrying out a practical experiment and analysing the results. Outdoor learning is incorporated where possible.

## Year 1 and Year 2

We work on a two-year cycle to cover the following topics over Year 1 and Year 2.

Topics covered in the programme of study (National Curriculum)	
<u>Year 1 Topics</u> <ul style="list-style-type: none"><li>• Plants</li><li>• Animals including humans</li><li>• Everyday materials</li><li>• Seasonal changes</li></ul>	<u>Year 2 Topics</u> <ul style="list-style-type: none"><li>• Plants</li><li>• Animals including humans</li><li>• Uses of everyday materials</li><li>• Living things and their habitats</li></ul>

## Working Scientifically Skills in Years 1 and 2

Year 1 and 2 Working Scientifically statements from National Curriculum	Year 1 and 2 "I can" statements
<i>asking simple questions and recognising that they can be answered in different ways</i>	I can explore the world around me and raise my own simple questions. I can start to think of different ways in which a question could be answered.
<i>observing closely, using simple equipment</i>	I can look carefully and say what I can see. I can use magnifiers. I can start to use simple equipment such as rulers, measuring jugs and timers.
<i>performing simple tests</i>	I can explore the world around me in a hands-on way. I can find ways to solve problems and test my ideas. I can carry out simple tests.
<i>identifying and classifying</i>	I can compare objects, materials and living things using simple features. I can sort items into groups. I can decide how to sort and group items in different ways.
<i>using their observations and ideas to suggest answers to questions</i>	I can talk about what I see and do. I use simple scientific language related to the topic. I can ask people questions to find answers. I can talk about what I found out and how I found it out. I can use books and digital sources to find answers to questions, with help.
<i>gathering and recording data to help in answering questions.</i>	I can draw pictures. I can write labels and captions. I can take photographs. I can complete simple tables. I can complete simple block graphs and pictograms. With help, I can begin to notice simple patterns and relationships.

## Years 3 and 4

We work on a two-year cycle to cover the following topics over Year 3 and Year 4.

Topics covered in the programme of study (National Curriculum)	
<u>Year 3 Topics</u> <ul style="list-style-type: none"><li>• Plants</li><li>• Rocks</li><li>• Light</li><li>• Forces and magnets</li></ul>	<u>Year 4 Topics</u> <ul style="list-style-type: none"><li>• Living things and their habitats</li><li>• Animals including humans</li><li>• States of matter</li><li>• Sound</li><li>• Electricity</li></ul>

## Working Scientifically Skills in Years 3 and 4

Year 3/ 4 Working Scientifically statements from National Curriculum	Year 3/ 4 "I can" statements
<i>asking relevant questions and using different types of scientific enquiries to answer them</i>	<p>I can think of my own relevant questions about the world around me.</p> <p>I can carry out a range of types of enquiry including</p> <ul style="list-style-type: none"> <li>• observation over time</li> <li>• looking for patterns</li> <li>• identifying and classifying</li> <li>• comparative and fair testing</li> <li>• researching using secondary sources</li> </ul> <p>I can start to make my own decisions about the most appropriate type of scientific enquiry I might use to answer a certain question.</p>
<i>setting up simple practical enquiries, comparative and fair tests</i>	<p>I can set up simple practical enquiries, comparative and fair tests.</p> <p>I can recognise when a simple fair test is necessary and help to decide how to set it up.</p>
<i>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</i>	<p>I can make systematic and careful observations</p> <p>I can make accurate measurements using standard units.</p> <p>I can learn how to use a range of equipment, such as data loggers and thermometers, appropriately.</p>
<i>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</i>	<p>I can collect and record data from my own observations and measurements in a variety of ways including:</p> <ul style="list-style-type: none"> <li>• notes</li> <li>• bar charts and tables</li> <li>• drawings</li> <li>• labelled diagrams</li> <li>• keys</li> </ul> <p>I can help to make decisions about how to analyse this data.</p>
<i>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</i>	<p>I can use relevant simple scientific language to discuss my ideas.</p> <p>I can report on my findings in different ways including</p> <ul style="list-style-type: none"> <li>• spoken explanations</li> <li>• written explanations</li> <li>• displays or presentations</li> </ul>
<i>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes</i>	<p>With help, I can look for changes, patterns, similarities and differences in my data in order to draw simple conclusions and answer questions.</p> <p>With support, I can identify new questions arising from the data.</p> <p>With support, I can make predictions for new values within or beyond the data I have collected.</p> <p>With support, I can find ways of improving what I have already done.</p>
<i>using straightforward scientific evidence to answer questions or to support their findings.</i>	<p>I can use simple texts to find information.</p> <p>I recognise how secondary sources might help me to answer questions that cannot be answered through practical investigations.</p>

## Years 5 and 6

We work on a two-year cycle to cover the following topics over Year 5 and Year 6.

Topics covered in the programme of study (National Curriculum)	
<p><u>Year 5 Topics</u></p> <ul style="list-style-type: none"> <li>• Living things and their habitats</li> <li>• Animals including humans</li> <li>• Properties and changes of materials</li> <li>• Earth and space</li> <li>• Forces</li> </ul>	<p><u>Year 6 Topics</u></p> <ul style="list-style-type: none"> <li>• Living things and their habitats</li> <li>• Animals including humans</li> <li>• Evolution and inheritance</li> <li>• Light</li> <li>• Electricity</li> </ul>

## Working Scientifically Skills in Years 5 and 6

Year 5/6 Working Scientifically statements from National Curriculum	Year 5/ 6 "I can" statements
<i>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</i>	<p>I can use my science experiences to raise different kinds of questions.</p> <p>I can select and plan the most appropriate type of scientific enquiry to use to answer scientific questions. These include:</p> <ul style="list-style-type: none"> <li>• observation over time</li> <li>• looking for patterns</li> <li>• identifying and classifying, including using and developing keys</li> <li>• comparative and fair testing</li> <li>• researching using secondary sources</li> </ul> <p>I can recognise when and how to set up comparative and fair tests.</p> <p>I can explain which variables need to be controlled and why.</p>
<i>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</i>	<p>I can choose the most appropriate equipment to make measurements.</p> <p>I make measurements with increasing precision.</p> <p>I can explain how to use equipment accurately.</p> <p>I can take repeat measurements where appropriate.</p> <p>I can make my own decisions about what observations/ measurements to make.</p>
<i>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</i>	<p>I can decide how to record data and results from a choice, including:</p> <ul style="list-style-type: none"> <li>• scientific diagrams and labels</li> <li>• classification keys</li> <li>• tables</li> <li>• scatter graphs, bar graphs and line graphs</li> </ul>
<i>using test results to make predictions to set up further comparative and fair tests</i>	<p>I can use my results to make predictions.</p> <p>I can identify when further tests might be needed.</p>
<i>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</i>	<p>I can use relevant scientific language and illustrations.</p> <p>I can discuss and justify my scientific ideas.</p> <p>I can explain whether or not I trust my results.</p> <p>I can explain how one thing causes another.</p> <p>I can use spoken and written forms such as displays and other presentations to report my conclusions.</p>
<i>identifying scientific evidence that has been used to support or refute ideas or arguments.</i>	<p>I can talk about how scientific ideas have developed over time.</p> <p>I can recognise which secondary sources will be most useful to research my ideas.</p> <p>I can begin to separate opinion from fact.</p> <p>I can identify scientific evidence that has been used to support ideas or prove them wrong.</p>