

### **Purpose of Study**

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes

### **The national curriculum for history aims to ensure that all pupils:**

- ♣ develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- ♣ develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- ♣ are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

### **Key Stage 1 content:**

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

### **Lower Key Stage 2 content:**

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

### **Upper Key Stage 2 content:**

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

To be working at '**EXPECTED or GREATER DEPTH**' in science children can ...

|        | <u>Expected</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <u>Greater depth</u>                                                                                                                                                                                                                                                                                                                                                                                |
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| Year 1 | <ul style="list-style-type: none"> <li>• talk about what they see, touch, smell, hear or taste</li> <li>• use simple equipment to help them make observations</li> <li>• perform a simple test</li> <li>• tell other people about what they have done</li> <li>• identify and classify things they observe</li> <li>• think of some questions to ask</li> <li>• answer some scientific questions</li> <li>• give a simple reason for their answers</li> <li>• explain what they have found out</li> <li>• show their work using pictures, labels and captions</li> <li>• record their findings using standard units</li> <li>• put some information in a chart or table</li> </ul>                                                                                                                                                        | <ul style="list-style-type: none"> <li>• find out by watching, listening, tasting, smelling and touching</li> <li>• give a simple reason for their answers</li> <li>• talk about similarities and differences</li> <li>• explain what they have found out using scientific vocabulary</li> <li>• use ICT to show their working</li> <li>• make accurate measurements</li> </ul>                     |
| Year 2 | <ul style="list-style-type: none"> <li>• use sight, touch, smell, hearing or taste to help them answer questions</li> <li>• use some scientific words to describe what they have seen and measured</li> <li>• compare several things</li> <li>• carry out a simple fair test</li> <li>• explain why it might not be fair to compare two things</li> <li>• say whether things happened as they expected</li> <li>• suggest how to find things out</li> <li>• use prompts to find things out</li> <li>• organise things into groups</li> <li>• find simple patterns (or associations)</li> <li>• identify animals and plants by a specific criteria, eg, lay eggs or not; have feathers or not</li> <li>• use text, diagrams, pictures, charts or tables to record their observations?</li> <li>• measure using simple equipment</li> </ul> | <ul style="list-style-type: none"> <li>• suggest ways of finding out through listening, hearing, smelling, touching and tasting</li> <li>• say whether things happened as they expected and if not why not</li> <li>• suggest more than one way of grouping animals and plants and explain their reasons</li> <li>• use information from books and online information to find things out</li> </ul> |

## BLACK PEAR TRUST – SUBJECT PLAN - SCIENCE

| EYFS                                                                                                                                                                                                                                                                                                                                                                                     | Year 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Year 2                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                                                                                                                                                                                                                                                                                                                                                                          | <u>Working scientifically</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Understanding the world</b> involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment children know about similarities and differences in relation to places, objects, materials and living things.</p>                                      | <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> <ol style="list-style-type: none"> <li>1. asking simple questions and recognising that they can be answered in different ways</li> <li>2. observing closely, using simple equipment</li> <li>3. performing simple tests</li> <li>4. identifying and classifying</li> <li>5. using their observations and ideas to suggest answers to questions</li> <li>6. gathering and recording data to help in answering questions.</li> </ol> <p style="color: green;">(numbers to be referenced on the science planning document)</p> |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                          | <u>Plants</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>• Notices detailed features of objects in their environment</li> <li>• Talk about some of the things they've observed</li> <li>• Develop an understanding of growth, decay and changes over time.</li> <li>• Shows concern and care for living things</li> <li>• Make observations and explain why things occur and talk about changes</li> </ul> | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>• Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Observe and describe how seeds and bulbs grow into mature plants</li> <li>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>                                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                          | <u>Animals, including humans</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>• Closely observes what animals, people and vehicles do.</li> <li>• Can talk about some of the things they have observed such as plants, animals, natural and found objects</li> <li>• Shows concern and care for living things</li> <li>• Make observations and explain why things occur and talk about changes</li> </ul>                       | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>                                                                                                                       | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Notice that animals, including humans, have offspring which grow into adults</li> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul> |

| <u>Year group specific units</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <ul style="list-style-type: none"> <li>• Knows things are used in different ways, e.g. a ball for rolling or throwing, a toy car for pushing.</li> <li>• Looks closely at similarities, differences, patterns and change</li> <li>• Talk about similarities and differences in materials and living things</li> <li>• Talk about how objects float and sink</li> </ul>                                                                                                                                 | <p><b>Everyday materials:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• Describe the simple physical properties of a variety of everyday materials</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul> | <p><b>Use of everyday materials:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world.</li> <li>• Developing an understanding of growth, decay and changes over time.</li> <li>• Shows care and concern for living things and the environment</li> <li>• Make observations and explain why things occur and talk about changes (including weather and seasons – daily routines of day, month, seasons, weather)</li> </ul> | <p><b>Seasonal changes:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Observe changes across the four seasons</li> <li>• Observe and describe weather associated with the seasons and how day length varies.</li> </ul>                                                                                                                                                                                                                                                                    | <p><b>Living things and their habitats:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>• Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</li> <li>• Identify and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>• Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</li> </ul> |

To be working at '**EXPECTED or GREATER DEPTH**' in science children can ...

|        | <u>Expected</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u>Greater Depth</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Year 3 | <p><b>PLANNING:</b></p> <ul style="list-style-type: none"> <li>• use different ideas and suggest how to find something out</li> <li>• make and record a prediction before testing</li> <li>• plan a fair test and explain why it was fair</li> <li>• explain why they need to collect information to answer a question</li> </ul> <p><b>OBSERVING AND PRESENTING EVIDENCE:</b></p> <ul style="list-style-type: none"> <li>• measure using different equipment and units of measure</li> <li>• record their observations in different ways &lt;labelled diagrams, charts etc&gt;</li> <li>• describe what they have found using scientific language</li> <li>• make accurate measurements using standard units</li> </ul> <p><b>CONSIDERING EVIDENCE AND EVALUATING:</b></p> <ul style="list-style-type: none"> <li>• explain what they have found out and use their measurements to say whether it helps to answer their question</li> <li>• use a range of equipment (including a data-logger) in a simple test</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables</li> <li>• explain their findings in different ways (display, presentation, writing)</li> <li>• use their findings to draw a simple conclusion?</li> <li>• suggest improvements and predictions for further tests</li> <li>• suggest how to improve their work if they did it again</li> </ul>                                                                               |
| Year 4 | <p><b>PLANNING:</b></p> <ul style="list-style-type: none"> <li>• set up a simple fair test to make comparisons</li> <li>• plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated</li> <li>• suggest improvements and predictions</li> <li>• decide which information needs to be collected and decide which is the best way for collecting it</li> <li>• use their findings to draw a simple conclusion</li> </ul> <p><b>OBSERVING AND PRESENTING EVIDENCE:</b></p> <ul style="list-style-type: none"> <li>• take measurements using different equipment and units of measure and record what they have found in a range of ways</li> <li>• make accurate measurements using standard units</li> <li>• explain their findings in different ways (display, presentation, writing)</li> </ul> <p><b>CONSIDERING EVIDENCE AND EVALUATING:</b></p> <ul style="list-style-type: none"> <li>• find any patterns in their evidence or measurements</li> <li>• make a prediction based on something they have found out</li> <li>• evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables</li> <li>• use straightforward scientific evidence to answer questions or to support their findings</li> <li>• identify differences, similarities or changes related to simple scientific ideas or processes</li> </ul> | <ul style="list-style-type: none"> <li>• plan and carry out an investigation by controlling variables fairly and accurately</li> <li>• use test results to make further predictions and set up further comparative tests</li> <li>• record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models</li> <li>• report findings from investigations through written explanations and conclusions</li> <li>• use a graph or diagram to answer scientific questions</li> </ul> |

|        | <u>Expected</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u>Greater Depth</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Year 5 | <p><b>PLANNING:</b></p> <ul style="list-style-type: none"> <li>plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary</li> <li>make a prediction with reasons</li> <li>use test results to make predictions to set up comparative and fair tests</li> <li>present a report of their findings through writing, display and presentation</li> </ul> <p><b>OBSERVING AND PRESENTING EVIDENCE:</b></p> <ul style="list-style-type: none"> <li>they take measurements using a range of scientific equipment with increasing accuracy and precision</li> <li>take repeat readings when appropriate</li> <li>record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs</li> </ul> <p><b>CONSIDERING EVIDENCE AND EVALUATING:</b></p> <ul style="list-style-type: none"> <li>report and present findings from enquiries through written explanations and conclusions</li> <li>use a graph to answer scientific questions</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>explore different ways to test an idea, choose the best way and give reasons</li> <li>vary one factor whilst keeping the others the same in an experiment</li> <li>use information to help make a prediction</li> <li>explain, in simple terms, a scientific idea and what evidence supports it</li> </ul><br><ul style="list-style-type: none"> <li>decide which units of measurement they need to use</li> <li>explain why a measurement needs to be repeated</li> </ul><br><ul style="list-style-type: none"> <li>find a pattern from their data and explain what it shows</li> <li>link what they have found out to other science</li> <li>suggest how to improve their work and say why they think this</li> </ul>                                                                                                                                                                                                                            |
| Year 6 | <p><b>PLANNING:</b></p> <ul style="list-style-type: none"> <li>explore different ways to test an idea, choose the best way, and give reasons</li> <li>vary one factor whilst keeping the others the same in an experiment. Can they explain why?</li> <li>plan and carry out an investigation by controlling variables fairly and accurately</li> <li>use information to help make a prediction</li> <li>use test results to make further predictions and set up further comparative tests</li> <li>explain, in simple terms, a scientific idea and what evidence supports it</li> </ul> <p><b>OBSERVING AND PRESENTING EVIDENCE:</b></p> <ul style="list-style-type: none"> <li>explain why they have chosen specific equipment (incl ICT based equipment)</li> <li>decide which units of measurement they need to use</li> <li>explain why a measurement needs to be repeated</li> <li>record their measurements in different ways</li> <li>take measurements using a range of scientific equipment with increasing accuracy and precision</li> </ul> <p><b>CONSIDERING EVIDENCE AND EVALUATING:</b></p> <ul style="list-style-type: none"> <li>find a pattern from their data and explain what it shows</li> <li>use a graph to answer scientific questions</li> <li>link what they have found out to other science</li> <li>suggest how to improve their work and say why they think this</li> <li>record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models</li> <li>report findings from investigations through written explanations and conclusions</li> <li>identify scientific evidence that has been used to support to refute ideas or arguments</li> <li>report and present 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</li> </ul> | <ul style="list-style-type: none"> <li>choose the best way to answer a question</li> <li>use information from different sources to answer a question and plan an investigation</li> <li>make a prediction which links with other scientific knowledge</li> <li>identify the key factors when planning a fair test</li> <li>explain how a scientist has used their scientific understanding plus good ideas to have a breakthrough</li> </ul><br><ul style="list-style-type: none"> <li>plan in advance which equipment they will need and use it well</li> <li>make precise measurements</li> <li>collect information in different ways</li> <li>record their measurements and observations systematically</li> <li>explain qualitative and quantitative data</li> </ul><br><ul style="list-style-type: none"> <li>draw conclusions from their work</li> <li>link their conclusions to other scientific knowledge</li> <li>explain how they could improve their way of working</li> </ul> |

| Year 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Year 4                                                                                                                                                                                                                                                                                                                                                                                                               | Year 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Year 6                                                                                                                                                                                                                                                                                                                                                                                   |
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| <u>Working scientifically</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                          |
| <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> <ol style="list-style-type: none"> <li>1. asking relevant questions and using different types of scientific enquiries to answer them</li> <li>2. setting up simple practical enquiries, comparative and fair tests</li> <li>3. making 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>4. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>5. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>6. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>7. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>8. identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>9. using straightforward scientific evidence to answer questions or to support their findings.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                      | <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> <ol style="list-style-type: none"> <li>1. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>2. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>3. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>4. using test results to make predictions to set up further comparative and fair tests</li> <li>5. 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</li> <li>6. identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ol> <p style="color: green;">(numbers to be referenced on the science planning document)</p> |                                                                                                                                                                                                                                                                                                                                                                                          |
| <u>Living things</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>• Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>• Investigate the way in which water is transported within plants</li> <li>• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Recognise that living things can be grouped in a variety of ways</li> <li>• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>• Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• Describe the life process of reproduction in some plants and animals.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>• Give reasons for classifying plants and animals based on specific characteristics.</li> </ul> |

| <u>Animals, including humans</u>                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</li> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>                             | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Describe the simple functions of the basic parts of the digestive system in humans</li> <li>Identify the different types of teeth in humans and their simple functions</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>                                                                                                                                                                   | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Describe the changes as humans develop to old age.</li> </ul>                                                                                                                                                                                                                                                                                                                                                  | <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>Describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>                                                                                                                                         |
| <u>Year group specific units</u>                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p><b>Rocks:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>Recognise that soils are made from rocks and organic matter.</li> </ul> | <p><b>States of matter:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul> | <p><b>Earth and Space:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>Describe the movement of the Moon relative to the Earth</li> <li>Describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul> | <p><b>Evolution and inheritance:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul> |



| <u>Year 3</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u>Year 4</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <u>Year 5</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>Year 6</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p><b>Light:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Recognise that they need light in order to see things and that dark is the absence of light</li> <li>Notice that light is reflected from surfaces</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>Recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>Find patterns in the way that the size of shadows change.</li> </ul> | <p><b>Sound:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Identify how sounds are made, associating some of them with something vibrating</li> <li>Recognise that vibrations from sounds travel through a medium to the ear</li> <li>Find patterns between the pitch of a sound and features of the object that produced it</li> <li>Find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>Recognise that sounds get fainter as the distance from the sound source increases</li> </ul> | <p><b>Properties and changes of materials:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> <li>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>Demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul> | <p><b>Light:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Recognise that light appears to travel in straight lines</li> <li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</li> <li>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> <li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul> |

| <u>Year 3</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <u>Year 4</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <u>Year 5</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>Year 6</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <p><b>Forces and magnets:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Compare how things move on different surfaces</li> <li>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>• Observe how magnets attract or repel each other and attract some materials and not others</li> <li>• Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify</li> </ul> | <p><b>Electricity:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity</li> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>• Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul> | <p><b>Forces:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul> | <p><b>Electricity:</b><br/>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>• Use recognised symbols when representing a simple circuit in a diagram.</li> </ul> |