

# Science Overview

## Animals Including humans



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals 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) 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><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: 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; identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> <li>•</li> </ul>	<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: describe the simple functions of the basic parts of the digestive system in humans, identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>	<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to:</li> <li>• describe the changes as humans develop to old age.</li> </ul>	<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: 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 Describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>
<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Name basic parts of the human body.</li> <li>• Know which body part is associated with each sense.</li> <li>• Identify and group animals.</li> <li>• Name and label the basic parts of an animal.</li> <li>• Know some similarities and differences between different animals.</li> <li>• Sort animals according to their diet and define what a herbivore, carnivore and omnivore is.</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• The word offspring means the young of a living thing.</li> <li>• Children should be able to name the offspring of a variety of animals.</li> <li>• The stages of human life are baby, toddler, child, teenager and adult. Animals including humans need air, water and food to survive.</li> <li>• A balanced diet, exercise and good hygiene help us to stay healthy.</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Name the five food groups. Identify that animals, including humans, need the right types and amount of nutrition</li> <li>• Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Name and describe the simple functions of the basic parts of the human digestive system (mouth, oesophagus, stomach, liver, pancreas, duodenum, small intestine, large intestine, rectum, anus)</li> <li>• Identify different types of human teeth and their functions (molar, premolar, canine, incisor, wisdom).</li> <li>• Identify differences in teeth of carnivores, omnivores and herbivores and why this is. Understand what causes tooth decay</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Order the stages of human development.</li> <li>• Demonstrate understanding of how babies grow in height and weight.</li> <li>• Know the main changes that occur during puberty.</li> <li>• Know the main changes that take place in old age</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Explain how blood pumps around the body and links to other internal systems of the body i.e respiratory and digestive</li> <li>• Understand the heart is a muscle and how to keep their heart healthy</li> </ul>

			<p>(plaque, bacteria, acids) and that some foods can damage teeth (sugars and starches, acids).</p> <ul style="list-style-type: none"> <li>Construct and interpret a variety of food chains and know meaning of predator, prey, source, producer, consumer.</li> </ul>		
<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask simple questions about the world around us.</li> <li>Begin to recognise that they can be answered in different ways.</li> <li>Begin to observe closely, using simple equipment.</li> <li>Use simple observations and ideas to suggest answers to questions.</li> <li>To observe simple changes over time and, with guidance, begin to notice patterns and relationships.</li> <li>To say what I am looking for and what I am measuring.</li> <li>To know how to use simple equipment safely.</li> <li>Use simple measurements and equipment with support (eg hand lenses and egg timers)</li> <li>Begin to progress from non-standard units, reading cm, m, cl, l, °C</li> <li>Perform simple tests with support.</li> <li>To begin to discuss my ideas about how to find things out.</li> <li>To begin to say what happened in my investigation.</li> <li>Gather and record data with some adult support, to help in answering questions.</li> <li>Begin to record simple data.</li> <li>Begin to record and communicate their findings in a range of ways.</li> <li>Can show my results in a simple table that my</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask questions about the world around us.</li> <li>Recognise that they can be answered in different ways.</li> <li>Observe closely, using simple equipment.</li> <li>Use observations and ideas to suggest answers to questions.</li> <li>To observe changes over time and, with guidance, begin to notice patterns and relationships.</li> <li>To say what I am looking for and what I am measuring.</li> <li>To know how to use simple equipment safely.</li> <li>Use simple measurements and equipment with increasing independence (eg hand lenses and egg timers)</li> <li>Begin to progress from non-standard units, reading mm, cm, m, ml, l, °C</li> <li>Perform simple tests. To discuss my ideas about how to find things out.</li> <li>To say what happened in my investigation.</li> <li>Gather and record data to help in answering questions.</li> <li>Record simple data.</li> <li>Record and communicate their findings in a range of ways.</li> <li>Can show my results in a table that my teacher has provided.</li> <li>Identify and classify. Observe and identify, compare and describe.</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask some relevant questions and use different types of scientific enquiries to answer them.</li> <li>Begin to explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>Begin to develop their ideas about functions, relationships and interactions.</li> <li>Begin to raise their own questions about the world around them.</li> <li>Begin to make some decisions about which types of enquiry will be the best way of answering questions</li> <li>Begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>Learn to use some new equipment appropriately (eg data loggers).</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>Explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>Begin to develop their ideas about functions, relationships and interactions.</li> <li>Raise their own questions about the world around them.</li> <li>Make some decisions about which types of enquiry will be the best way of answering questions</li> <li>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>Learn to use new equipment appropriately (eg data loggers).</li> <li>Can see a pattern in my results.</li> <li>Can choose from a</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>Begin to recognise scientific ideas change and develop over time.</li> <li>Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry</li> <li>Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Begin to identify patterns that might be found in the natural environment.</li> <li>Begin to 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.</li> <li>Choose the most</li> </ul>	<p><b>Essential Skills</b></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>Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>Begin to recognise scientific ideas change and develop over time.</li> <li>Select the most appropriate ways to answer science questions using different types of scientific enquiry.</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.</li> <li>Identify patterns that might be found in the natural environment.</li> <li>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.</li> <li>Choose the most appropriate equipment and explain how to use it accurately.</li> </ul>

<p>teacher has provided</p> <ul style="list-style-type: none"> <li>● Identify and classify with some support.</li> <li>● To begin to observe and identify, compare and describe.</li> <li>● To begin to use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>● To begin to use simple secondary sources to find answers.</li> <li>● To begin to find information to help me from books and computers with help.</li> <li>● Begin to talk about what they have found out and how they found it out</li> <li>● To begin to say what happened in my investigation.</li> <li>● To begin to say whether I was surprised at the results or not.</li> <li>● To begin to say what I would change about my investigation.</li> </ul>	<ul style="list-style-type: none"> <li>● Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>● Use simple secondary sources to find answers.</li> <li>● Can find information to help me from books and computers with help</li> <li>● Talk about what they have found out and how they found it out.</li> <li>● To say what happened in my investigation.</li> <li>● To say whether I was surprised at the results or not.</li> <li>● To say what I would change about my investigation.</li> </ul>	<ul style="list-style-type: none"> <li>● Begin to see a pattern in my results.</li> <li>● Begin to choose from a selection of equipment.</li> <li>● Begin to observe and measure accurately using standard units including time in minutes and seconds.</li> <li>● Set up some simple practical enquiries, comparative and fair tests.</li> <li>● Begin to recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>● Begin to think of more than one variable factor</li> <li>● Gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</li> <li>● Begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</li> <li>● Begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>● Begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>● Begin to record results in tables and bar charts.</li> <li>● Begin to identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>● Begin to talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>● Begin to compare and group according to behaviour or properties, based on testing.</li> <li>● Begin to recognise when and how secondary sources might help to answer questions that</li> </ul>	<p>selection of equipment.</p> <ul style="list-style-type: none"> <li>● Can observe and measure accurately using standard units including time in minutes and seconds.</li> <li>● Set up simple practical enquiries, comparative and fair tests.</li> <li>● Recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>● Can think of more than one variable factor.</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 notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>● Can record results in tables and bar charts.</li> <li>● Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>● Talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>● Compare and group according to behaviour or properties, based on testing.</li> <li>● Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> <li>● Using results to draw simple conclusions , make predictions for</li> </ul>	<p>appropriate equipment and explain how to use it accurately. Begin to interpret data and find patterns.</p> <ul style="list-style-type: none"> <li>● Select equipment on my own. Can make a set of observations and say what the interval and range are.</li> <li>● Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line</li> <li>● Begin to use test results to make predictions to set up further comparative and fair tests.</li> <li>● Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> <li>● Begin to suggest improvements to my method and give reasons.</li> <li>● Begin to decide when it is appropriate to do a fair test.</li> <li>● Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li> <li>● Begin to report and present findings from enquiries.</li> <li>● Begin to decide how to record data from a choice of familiar approaches.</li> <li>● Begin to choose how best to present data.</li> <li>● Begin to use and develop keys and other information records to identify, classify and describe living things and materials.</li> <li>● Begin to recognise which secondary sources will be most useful to research their ideas.</li> </ul>	<ul style="list-style-type: none"> <li>● Can interpret data and find patterns.</li> <li>● Select equipment on my own.</li> <li>● Can make a set of observations and say what the interval and range are.</li> <li>● Accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line, bar</li> <li>● Use test results to make predictions to set up further comparative and fair tests.</li> <li>● Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> <li>● Suggest improvements to my method and give reasons.</li> <li>● Decide when it is appropriate to do a fair test.</li> <li>● Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li> <li>● Report and present findings from enquiries.</li> <li>● Decide how to record data from a choice of familiar approaches.</li> <li>● Can choose how best to present data</li> <li>● Use and develop keys and other information records to identify, classify and describe living things and materials.</li> <li>● Recognise which secondary sources will be most useful to research their ideas.</li> <li>● Reporting and presenting findings from enquiries , including conclusions, causal relationships and explanations of and degree of trust in results,</li> </ul>
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		<p>cannot be answered through practical investigations.</p> <ul style="list-style-type: none"> <li>• I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>• Am beginning to use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• Am beginning to see a pattern in my results. Am beginning to say what I found out, linking cause and effect.</li> <li>• Am beginning to say how I could make it better.</li> <li>• Am beginning to answer questions from what I have found out.</li> </ul>	<p>new values, suggest improvements and raise further questions.</p> <ul style="list-style-type: none"> <li>• Use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• Can see a pattern in my results.</li> <li>• Can say what I found out, linking cause and effect.</li> <li>• Can say how I could make it better.</li> <li>• Can answer questions from what I have found out</li> </ul>	<ul style="list-style-type: none"> <li>• Am beginning to 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> <li>• Begin to identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>• Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</li> <li>• Begin to use test results to make predictions to set up further comparatives and fair tests.</li> <li>• Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Begin to separate opinion from fact.</li> <li>• Begin to draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> <li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li> </ul>	<p>in oral and written forms such as displays and other presentations.</p> <ul style="list-style-type: none"> <li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>• Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</li> <li>• Use test results to make predictions to set up further comparatives and fair tests.</li> <li>• Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Separate opinion from fact.</li> <li>• Can draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> <li>• Use test results to make predictions to set up further comparative and fair tests.</li> </ul>
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<p><b>Links to prior learning:</b> EYFS, Understanding the world Y1, Animals including humans</p>	<p><b>Links to prior learning:</b> EYFS, Understanding the world Y1, Identifying animals</p>	<p><b>Links to prior learning:</b> EYFS, Understanding the world Y1, Carnivore, Herbivores and omnivores, body parts of a human Y2, Food and diet</p>	<p><b>Links to prior learning:</b> EYFS, Understanding the world Y1, Carnivore, Herbivores and omnivores Y2, Food and diet Y3, Nutrition</p>	<p><b>Links to prior learning:</b> EYFS, Understanding the world Y1, Y2, Offspring and stages of development of a human</p>	<p><b>Links to prior learning:</b> EYFS, Understanding the world Y1 Body parts of a human Y4, Digestive system</p>
<p><b>Links to future learning:</b> Y2, Y3, Carnivore, Herbivores and omnivores, body parts of a human Y4, Carnivore, Herbivores and omnivores - Living things and their habitats - Groupings Y5, Living things and their habitats - Groupings Y6, Body parts of a human - Living things and their habitats - Groupings</p>	<p><b>Links to future learning:</b> Y3, Food and diet Y4, Nutrition Y5, Offspring and stages of development of a human</p>	<p><b>Links to future learning:</b> Y4, Nutrition, Tooth decay, Digestive system</p>	<p><b>Links to future learning:</b></p>	<p><b>Links to future learning:</b></p>	<p><b>Links to future learning:</b> KS3 - Biology Structure of living organisms</p>



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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: identify and name a variety of common wild and garden plants, including deciduous and evergreen trees; identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>	<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>	<p><b>Subject Content:</b></p> <ul style="list-style-type: none"> <li>• Pupils should be taught to: identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers 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 explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<p><b>Subject Content:</b></p>	<p><b>Subject Content:</b></p>	<p><b>Subject Content:</b></p>
<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Label the basic parts of a plant. Observe a bean growing and record their observations.</li> <li>• Identify different types of plants</li> <li>• Children to name some wild and garden plants.</li> <li>• Identify the difference between evergreen and deciduous trees</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• When a seed begins to grow into a plant it is called germination.</li> <li>• Plants need water, sunlight and a suitable temperature to grow and stay healthy.</li> <li>• We can eat parts of plants such as the roots (potatoes and carrots), leaves (cabbage and lettuce), stem (celery and rhubarb), flower (broccoli and cauliflower) and seeds (sweetcorn).</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understand what plants need to grow.</li> <li>• Understand the functions of different parts of plants. Describe the different ways in which plants can disperse their seeds.</li> <li>• Investigate the way in which water is transported in a plant.</li> </ul>	<p><b>Essential Knowledge:</b></p>	<p><b>Essential Knowledge:</b></p>	<p><b>Essential Knowledge:</b></p>
<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>• Ask simple questions about the world around us.</li> <li>• Begin to recognise that they can be answered in different ways.</li> <li>• Begin to observe closely, using simple equipment.</li> <li>• Use simple observations and ideas to suggest answers to questions.</li> <li>• To observe simple</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>• Ask questions about the world around us.</li> <li>• Recognise that they can be answered in different ways.</li> <li>• Observe closely, using simple equipment.</li> <li>• Use observations and ideas to suggest answers to questions.</li> <li>• To observe changes over time and, with guidance,</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>• Ask some relevant questions and use different types of scientific enquiries to answer them.</li> <li>• Begin to explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>• Begin to develop their ideas about functions,</li> </ul>	<p><b>Essential Skills</b></p>	<p><b>Essential Skills</b></p>	<p><b>Essential Skills</b></p>

<p>changes over time and, with guidance, begin to notice patterns and relationships.</p> <ul style="list-style-type: none"> <li>• To say what I am looking for and what I am measuring.</li> <li>• To know how to use simple equipment safely.</li> <li>• Use simple measurements and equipment with support (eg hand lenses and egg timers)</li> <li>• Begin to progress from non-standard units, reading cm, m, cl, l, °C</li> <li>• Perform simple tests with support.</li> <li>• To begin to discuss my ideas about how to find things out.</li> <li>• To begin to say what happened in my investigation.</li> <li>• Gather and record data with some adult support, to help in answering questions.</li> <li>• Begin to record simple data.</li> <li>• Begin to record and communicate their findings in a range of ways.</li> <li>• Can show my results in a simple table that my teacher has provided</li> <li>• Identify and classify with some support.</li> <li>• To begin to observe and identify, compare and describe.</li> <li>• To begin to use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>• To begin to use simple secondary sources to find answers.</li> <li>• To begin to find information to help me from books and computers with help.</li> <li>• Begin to talk about what they have found out and how they found it out</li> <li>• To begin to say what</li> </ul>	<p>begin to notice patterns and relationships.</p> <ul style="list-style-type: none"> <li>• To say what I am looking for and what I am measuring.</li> <li>• To know how to use simple equipment safely.</li> <li>• Use simple measurements and equipment with increasing independence (eg hand lenses and egg timers)</li> <li>• Begin to progress from non-standard units, reading mm, cm, m, ml, l, °C</li> <li>• Perform simple tests. To discuss my ideas about how to find things out.</li> <li>• To say what happened in my investigation.</li> <li>• Gather and record data to help in answering questions.</li> <li>• Record simple data.</li> <li>• Record and communicate their findings in a range of ways.</li> <li>• Can show my results in a table that my teacher has provided.</li> <li>• Identify and classify. Observe and identify, compare and describe.</li> <li>• Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>• Use simple secondary sources to find answers.</li> <li>• Can find information to help me from books and computers with help</li> <li>• Talk about what they have found out and how they found it out.</li> <li>• To say what happened in my investigation.</li> <li>• To say whether I was surprised at the results or not.</li> <li>• To say what I would change about my investigation.</li> </ul>	<p>relationships and interactions.</p> <ul style="list-style-type: none"> <li>• Begin to raise their own questions about the world around them.</li> <li>• Begin to make some decisions about which types of enquiry will be the best way of answering questions</li> <li>• Begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>• Learn to use some new equipment appropriately (eg data loggers).</li> <li>• Begin to see a pattern in my results.</li> <li>• Begin to choose from a selection of equipment.</li> <li>• Begin to observe and measure accurately using standard units including time in minutes and seconds.</li> <li>• Set up some simple practical enquiries, comparative and fair tests.</li> <li>• Begin to recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>• Begin to think of more than one variable factor</li> <li>• Gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</li> <li>• Begin to record findings</li> </ul>			
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<p>happened in my investigation.</p> <ul style="list-style-type: none"> <li>• To begin to say whether I was surprised at the results or not.</li> <li>• To begin to say what I would change about my investigation.</li> </ul>		<p>using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</p> <ul style="list-style-type: none"> <li>• Begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>• Begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>• Begin to record results in tables and bar charts.</li> <li>• Begin to identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>• Begin to talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>• Begin to compare and group according to behaviour or properties, based on testing.</li> <li>• Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> <li>• I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>• Am beginning to use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, am beginning to identify new questions arising from the data, make new</li> </ul>			
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		<p>predictions and find ways of improving what they have already done.</p> <ul style="list-style-type: none"> <li>• Am beginning to see a pattern in my results. Am beginning to say what I found out, linking cause and effect.</li> <li>• Am beginning to say how I could make it better.</li> <li>• Am beginning to answer questions from what I have found out.</li> </ul>			
<b>Links to prior learning:</b> EYFS, Growing and caring for nature Y1, Plants	<b>Links to prior learning:</b> EYFS, Growing and caring Y1, Types of plants	<b>Links to prior learning:</b> EYFS, Growing and caring Y1, Parts of a plant Y2, Germination and needs of a plant	<b>Links to prior learning:</b>	<b>Links to prior learning:</b>	<b>Links to prior learning:</b>
<b>Links to future learning:</b> Y2, Needs of a plant, plants grow fruit and vegetables that we can eat Y3, Functions of parts of a plant Y4, Living things and their habitats	<b>Links to future learning:</b> Y3, Functions of parts of a plant, needs of a plant	<b>Links to future learning:</b> KS3 - Biology - Material cycles and energy	<b>Links to future learning:</b>	<b>Links to future learning:</b>	<b>Links to future learning:</b>

<b>Science Overview</b>					
<b>Living things and their habitats</b>					
					
<b>The national curriculum for Science aims to ensure that all pupils:</b> <ul style="list-style-type: none"> <li>• The national curriculum for science 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.</li> </ul>					
<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Subject Content:</b>	<b>Subject Content:</b> <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> </ul>	<b>Subject Content:</b>	<b>Subject Content:</b> <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</li> </ul>	<b>Subject Content:</b> <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> </ul>	<b>Subject Content:</b> <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</li> </ul>

	<ul style="list-style-type: none"> <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>		<p>name a variety of living things in their local and wider environment.</p> <ul style="list-style-type: none"> <li>Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul>	<ul style="list-style-type: none"> <li>Describe the life process of reproduction in some plants and animals.</li> </ul>	<p>differences, including micro-organisms, plants and animals</p> <ul style="list-style-type: none"> <li>Give reasons for classifying plants and animals based on specific characteristics.</li> </ul>
<b>Essential Knowledge:</b>	<ul style="list-style-type: none"> <li><b>Essential Knowledge:</b></li> <li>Movement, respiration, sensitivity, growth, reproduction, excretion and nutrition are the seven life processes that all living things do. MRS GREN</li> <li>Something that used to do the seven life processes is dead. Something that has never been able to do the seven life processes has never been alive.</li> <li>A habitat is a place where animals and plants live. Examples include woodland, pond, urban, ocean, rainforest and desert.</li> <li>A microhabitat is a very small habitat such as fallen leaves. Animals are well suited to their habitats. Examples include polar bears, camels, and sharks.</li> <li>A food chain can show that animals get their food from plants and other animals.</li> </ul>	<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>Know that living things can be grouped in a variety of ways (e.g. plants and animals, flowering and non-flowering plants, vertebrates and invertebrates).</li> <li>Know the 5 main vertebrate groups: mammals, reptiles, amphibians, fish and birds.</li> <li>Use classification keys to help group, identify, and name living things in the environment.</li> <li>Know that environments can change through the effects of human population and development, litter, deforestation and natural events such as fire and floods and this can damage habitats.</li> </ul>	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>Compare the life cycle of certain mammals, reptiles, amphibians and birds.</li> <li>Identify the parts of a plant and its function</li> <li>Explain asexual reproduction and sexual reproduction in plants</li> </ul>	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>Give reasons for classifying plants and animals based on specific characteristics.</li> <li>Know living things are classified into broad groups according to common observable characteristics.</li> </ul>
<b>Essential Skills</b>	<b>Essential Skills</b> <ul style="list-style-type: none"> <li>Ask questions about the world around us.</li> </ul>	<b>Essential Skills</b>	<b>Essential Skills</b> <ul style="list-style-type: none"> <li>Ask relevant questions and use different types</li> </ul>	<b>Essential Skills</b> <ul style="list-style-type: none"> <li>Begin to plan different types of scientific</li> </ul>	<b>Essential Skills</b> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to</li> </ul>

	<ul style="list-style-type: none"> <li>● Recognise that they can be answered in different ways.</li> <li>● Observe closely, using simple equipment.</li> <li>● Use observations and ideas to suggest answers to questions.</li> <li>● To observe changes over time and, with guidance, begin to notice patterns and relationships.</li> <li>● To say what I am looking for and what I am measuring.</li> <li>● To know how to use simple equipment safely.</li> <li>● Use simple measurements and equipment with increasing independence (eg hand lenses and egg timers)</li> <li>● Begin to progress from non-standard units, reading mm, cm, m, ml, l, °C</li> <li>● Perform simple tests. To discuss my ideas about how to find things out.</li> <li>● To say what happened in my investigation.</li> <li>● Gather and record data to help in answering questions.</li> <li>● Record simple data.</li> <li>● Record and communicate their findings in a range of ways.</li> <li>● Can show my results in a table that my teacher has provided.</li> <li>● Identify and classify. Observe and identify, compare and describe.</li> <li>● Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>● Use simple secondary sources to find answers.</li> <li>● Can find information to help me from books and computers with help</li> <li>● Talk about what they have found out and how</li> </ul>		<p>of scientific enquiries to answer them.</p> <ul style="list-style-type: none"> <li>● Explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>● Begin to develop their ideas about functions, relationships and interactions.</li> <li>● Raise their own questions about the world around them.</li> <li>● Make some decisions about which types of enquiry will be the best way of answering questions</li> <li>● Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>● Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>● Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>● Learn to use new equipment appropriately (eg data loggers).</li> <li>● Can see a pattern in my results.</li> <li>● Can choose from a selection of equipment.</li> <li>● Can observe and measure accurately using standard units including time in minutes and seconds.</li> <li>● Set up simple practical enquiries, comparative and fair tests.</li> <li>● Recognise when a simple fair test is necessary and help to decide how to set it up.</li> </ul>	<p>enquiries to answer questions, including recognising and controlling variables where necessary.</p> <ul style="list-style-type: none"> <li>● Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>● Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>● Begin to recognise scientific ideas change and develop over time. Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry</li> <li>● Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Begin to identify patterns that might be found in the natural environment.</li> <li>● Begin to 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.</li> <li>● Choose the most appropriate equipment and explain how to use it accurately. Begin to interpret data and find patterns.</li> <li>● Select equipment on my own. Can make a set of observations and say what the interval and range are.</li> <li>● Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds,</li> </ul>	<p>answer questions, including recognising and controlling variables where necessary.</p> <ul style="list-style-type: none"> <li>● Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>● Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>● Begin to recognise scientific ideas change and develop over time.</li> <li>● Select the most appropriate ways to answer science questions using different types of scientific enquiry.</li> <li>● Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.</li> <li>● Identify patterns that might be found in the natural environment.</li> <li>● 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.</li> <li>● Choose the most appropriate equipment and explain how to use it accurately.</li> <li>● Can interpret data and find patterns.</li> <li>● Select equipment on my own.</li> <li>● Can make a set of observations and say what the interval and range are.</li> <li>● Accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line, bar</li> </ul>
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	<p>they found it out.</p> <ul style="list-style-type: none"> <li>• To say what happened in my investigation.</li> <li>• To say whether I was surprised at the results or not.</li> <li>• To say what I would change about my investigation.</li> </ul>		<ul style="list-style-type: none"> <li>• Can think of more than one variable factor.</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 notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>• Can record results in tables and bar charts.</li> <li>• Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>• Talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>• Compare and group according to behaviour or properties, based on testing.</li> <li>• Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> <li>• Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>• Use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer</li> </ul>	<p>cm<sup>2</sup>V, km/h, m per sec, m/ sec</p> <p>Graphs – pie, line</p> <ul style="list-style-type: none"> <li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li> <li>• Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> <li>• Begin to suggest improvements to my method and give reasons.</li> <li>• Begin to decide when it is appropriate to do a fair test.</li> <li>• Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li> <li>• Begin to report and present findings from enquiries.</li> <li>• Begin to decide how to record data from a choice of familiar approaches.</li> <li>• Begin to choose how best to present data.</li> <li>• Begin to use and develop keys and other information records to identify, classify and describe living things and materials.</li> <li>• Begin to recognise which secondary sources will be most useful to research their ideas.</li> <li>• Am beginning to 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> <li>• Begin to identify scientific evidence that has been used to support or refute ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Use test results to make predictions to set up further comparative and fair tests.</li> <li>• Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> <li>• Suggest improvements to my method and give reasons.</li> <li>• Decide when it is appropriate to do a fair test.</li> <li>• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li> <li>• Report and present findings from enquiries.</li> <li>• Decide how to record data from a choice of familiar approaches.</li> <li>• Can choose how best to present data</li> <li>• Use and develop keys and other information records to identify, classify and describe living things and materials.</li> <li>• Recognise which secondary sources will be most useful to research their ideas.</li> <li>• 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>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>• Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain</li> </ul>
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			<p>questions.</p> <ul style="list-style-type: none"> <li>• With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• Can see a pattern in my results.</li> <li>• Can say what I found out, linking cause and effect.</li> <li>• Can say how I could make it better.</li> <li>• Can answer questions from what I have found out</li> </ul>	<p>or arguments.</p> <ul style="list-style-type: none"> <li>• Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</li> <li>• Begin to use test results to make predictions to set up further comparatives and fair tests.</li> <li>• Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Begin to separate opinion from fact.</li> <li>• Begin to draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> <li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li> </ul>	<p>their findings.</p> <ul style="list-style-type: none"> <li>• Use test results to make predictions to set up further comparatives and fair tests.</li> <li>• Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Separate opinion from fact.</li> <li>• Can draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> <li>• Use test results to make predictions to set up further comparative and fair tests.</li> </ul>
<b>Links to prior learning:</b>	<b>Links to prior learning:</b> EYFS, Forest school - identifying and comparing habitats	<b>Links to prior learning:</b>	<b>Links to prior learning:</b> EYFS, Caring for living things Y1, Animals including humans - grouping Y2, Living or Dead	<b>Links to prior learning:</b> EYFS, Life cycles Y1, Parts of a plant, Animals including humans - groupings Y2, Stages of human development - MRS GREN Y3, Functions of parts of a plant	<b>Links to prior learning:</b> EYFS, Observing Y1 Animals including humans - grouping Y2, Animals suited to habitats Y3, Food groups and Skeleton structure Y4, Grouping and classifying Y5, Identifying, classifying and explaining
<b>Links to future learning:</b>	<b>Links to future learning:</b> Y4, Living things groupings Y5, asexual/sexual reproduction in plants Y6, Identifying specific characteristics	<b>Links to future learning:</b>	<b>Links to future learning:</b> Y5, Knowing 5 vertebrate groups Y6, Grouping and classifying specific characteristics	<b>Links to future learning:</b> Y6 Grouping and classifying specific characteristics	<b>Links to future learning:</b> KS3 - Biology - Structure and function of living organisms

## Science Overview

### Evolution and their inheritance



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	Subject Content:	Subject Content:	Subject Content:	<b>Subject Content:</b> <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</li></ul>

					<p>and are not identical to their parents</p> <ul style="list-style-type: none"> <li>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>
<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>Offspring inherit genes from their parent or parents.</li> <li>Inherited and learnt characteristics are often referred to nature vs nurture.</li> <li>Adaptations occur due to random mutations and can lead to evolution.</li> <li>Charles Darwin established his theory of evolution from observing finches.</li> <li>We can use fossils to study and document the evolution of different animals and plants.</li> </ul>
<b>Essential Skills</b>	<b>Essential Skills</b>	<b>Essential Skills</b>	<b>Essential Skills</b>	<b>Essential Skills</b>	<p><b>Essential Skills</b></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>Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>Begin to recognise scientific ideas change and develop over time.</li> <li>Select the most appropriate ways to answer science questions using different types of scientific enquiry.</li> <li>Take measurements, using a range of</li> </ul>

					<p>scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.</p> <ul style="list-style-type: none"><li>• Identify patterns that might be found in the natural environment.</li><li>• 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.</li><li>• Choose the most appropriate equipment and explain how to use it accurately.</li><li>• Can interpret data and find patterns.</li><li>• Select equipment on my own.</li><li>• Can make a set of observations and say what the interval and range are.</li><li>• Accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line, bar</li><li>• Use test results to make predictions to set up further comparative and fair tests.</li><li>• Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li><li>• Suggest improvements to my method and give reasons.</li><li>• Decide when it is appropriate to do a fair test.</li><li>• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li><li>• Report and present findings from enquiries.</li><li>• Decide how to record data from a choice of familiar approaches.</li></ul>
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					<ul style="list-style-type: none"><li>• Can choose how best to present data</li><li>• Use and develop keys and other information records to identify, classify and describe living things and materials.</li><li>• Recognise which secondary sources will be most useful to research their ideas.</li><li>• 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>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li><li>• Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</li><li>• Use test results to make predictions to set up further comparatives and fair tests.</li><li>• Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li><li>• Use their results to identify when further tests and observations are needed.</li><li>• Separate opinion from fact.</li><li>• Can draw conclusions and identify scientific evidence.</li><li>• Can use simple models.</li><li>• Know which evidence proves a scientific point.</li><li>• Use test results to make predictions to set up further comparative and fair tests.</li></ul>
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Links to prior learning:	Links to prior learning:	Links to prior learning:	Links to prior learning:	Links to prior learning:	Links to prior learning: Y2, Animals including humans - human development stages Y5, Animals including humans - human development stages
Links to future learning:	Links to future learning:	Links to future learning:	Links to future learning:	Links to future learning:	Links to future learning: KS3 - Biology - Genetics and Evolution

## Science Overview

### Seasonal change



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Subject Content:</b> <ul style="list-style-type: none"> <li>Observe the changes across the four seasons.</li> <li>Observe and describe the weather associated with the season and how day length varies.</li> </ul>	Subject Content:	Subject Content:	Subject Content:	Subject Content:	Subject Content:
<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>Describe weather changes throughout the year.</li> <li>Observe the seasons and what happens in them.</li> </ul>	Essential Knowledge:	Essential Knowledge:	Essential Knowledge:	Essential Knowledge:	Essential Knowledge:
<b>Essential Skills</b> <ul style="list-style-type: none"> <li>Ask simple questions about the world around us.</li> <li>Begin to recognise that</li> </ul>	Essential Skills	Essential Skills	Essential Skills	Essential Skills	Essential Skills

they can be answered in different ways.

- Begin to observe closely, using simple equipment.
- Use simple observations and ideas to suggest answers to questions.
- To observe simple changes over time and, with guidance, begin to notice patterns and relationships.
- To say what I am looking for and what I am measuring.
- To know how to use simple equipment safely.
- Use simple measurements and equipment with support (eg hand lenses and egg timers)
- Begin to progress from non-standard units, reading cm, m, cl, l, °C
- Perform simple tests with support.
- To begin to discuss my ideas about how to find things out.
- To begin to say what happened in my investigation.
- Gather and record data with some adult support, to help in answering questions.
- Begin to record simple data.
- Begin to record and communicate their findings in a range of ways.
- Can show my results in a simple table that my teacher has provided
- Identify and classify with some support.
- To begin to observe and identify, compare and describe.
- To begin to use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.
- To begin to use simple secondary sources to find answers.

<ul style="list-style-type: none"> <li>• To begin to find information to help me from books and computers with help.</li> <li>• Begin to talk about what they have found out and how they found it out</li> <li>• To begin to say what happened in my investigation.</li> <li>• To begin to say whether I was surprised at the results or not.</li> <li>• To begin to say what I would change about my investigation.</li> </ul>					
<b>Links to prior learning:</b> EYFS, Basic weather observations, seasons and influencing choices, naming and observing seasons	<b>Links to prior learning:</b>	<b>Links to prior learning:</b>	<b>Links to prior learning:</b>	<b>Links to prior learning:</b>	<b>Links to prior learning:</b>
<b>Links to future learning:</b> KS3 - Physics - Changes in systems	<b>Links to future learning:</b>	<b>Links to future learning:</b>	<b>Links to future learning:</b>	<b>Links to future learning:</b>	<b>Links to future learning:</b> KS3 -

## Science Overview

Everyday Materials (Year 1)  
 Uses of Everyday Materials (Year 2)  
 States of matter (Year 4)  
 Properties and changes of materials (Year 5)



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><b>Subject Content:</b></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>Subject Content:</b></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>	<p><b>Subject Content:</b></p>	<p><b>Subject Content:</b></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>Subject Content:</b></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</li> </ul>	<p><b>Subject Content:</b></p>

				<p>changes of state are reversible changes.</p> <ul style="list-style-type: none"> <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>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>Identify and compare the materials everyday objects are made from: wood, plastic, glass, metal, water, rock.</li> <li>Distinguish between an object and the material which it is made from e.g. a table made from wood.</li> <li>Investigate the suitability of materials for a specific purpose e.g. plastic works better for an umbrella because it is waterproof</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>Identify and name a variety of everyday materials including wood, metal, plastic, glass, rock, paper, cardboard and fabric.</li> <li>Materials can be described as shiny, dull, rough, smooth, transparent, opaque, waterproof, absorbent, stretchy, stiff, hard, soft, bendy or not bendy.</li> <li>The properties of a material makes the material suitable for a specific use. Examples: Windows are made from glass because glass is strong, transparent and waterproof. Chair legs are made out of metal because metal is strong, stiff and not bendy.</li> </ul>		<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>Know the main properties of solids, liquids and gases.</li> <li>Solids - holds its shape, closely packed particles.</li> <li>Liquids - takes shape of container, can be poured, particles less tightly packed.</li> <li>Gases - fill space they are in, particles very loosely packed.</li> <li>Compare and group materials according to whether they are solids, liquids or gases.</li> <li>Know that some materials change state when they are heated or cooled (ice, water, water vapour).</li> <li>Know what the water cycle is and the four main stages: evaporation, condensation, precipitation, collection.</li> </ul>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>Know the properties of different materials using words such as impermeable, conductive, thermal, soluble, transparent.</li> <li>Know that some materials will dissolve in liquid to form a solution and that some substances can be recovered from a solution.</li> <li>Explain with examples reversible and irreversible changes to a material including burning.</li> <li>Explain the terms: properties, dissolve, solution, filtering, sieving and evaporating.</li> </ul>	
<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask simple questions about the world around us.</li> <li>Begin to recognise that they can be answered in different ways.</li> <li>Begin to observe closely, using simple equipment.</li> <li>Use simple observations and ideas to suggest answers to questions.</li> <li>To observe simple changes over time and, with guidance, begin to notice patterns and relationships.</li> <li>To say what I am looking</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask questions about the world around us.</li> <li>Recognise that they can be answered in different ways.</li> <li>Observe closely, using simple equipment.</li> <li>Use observations and ideas to suggest answers to questions.</li> <li>To observe changes over time and, with guidance, begin to notice patterns and relationships.</li> <li>To say what I am looking for and what I am</li> </ul>		<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>Explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>Begin to develop their ideas about functions, relationships and interactions.</li> <li>Raise their own questions about the world around them.</li> <li>Make some decisions</li> </ul>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>Begin to recognise some more abstract ideas and</li> </ul>	

<p>for and what I am measuring.</p> <ul style="list-style-type: none"> <li>• To know how to use simple equipment safely.</li> <li>• Use simple measurements and equipment with support (eg hand lenses and egg timers)</li> <li>• Begin to progress from non-standard units, reading cm, m, cl, l, °C</li> <li>• Perform simple tests with support.</li> <li>• To begin to discuss my ideas about how to find things out.</li> <li>• To begin to say what happened in my investigation.</li> <li>• Gather and record data with some adult support, to help in answering questions.</li> <li>• Begin to record simple data.</li> <li>• Begin to record and communicate their findings in a range of ways.</li> <li>• Can show my results in a simple table that my teacher has provided</li> <li>• Identify and classify with some support.</li> <li>• To begin to observe and identify, compare and describe.</li> <li>• To begin to use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>• To begin to use simple secondary sources to find answers.</li> <li>• To begin to find information to help me from books and computers with help.</li> <li>• Begin to talk about what they have found out and how they found it out</li> <li>• To begin to say what happened in my investigation.</li> <li>• To begin to say whether I was surprised at the results or not.</li> </ul>	<p>measuring.</p> <ul style="list-style-type: none"> <li>• To know how to use simple equipment safely.</li> <li>• Use simple measurements and equipment with increasing independence (eg hand lenses and egg timers)</li> <li>• Begin to progress from non-standard units, reading mm, cm, m, ml, l, °C</li> <li>• Perform simple tests. To discuss my ideas about how to find things out.</li> <li>• To say what happened in my investigation.</li> <li>• Gather and record data to help in answering questions.</li> <li>• Record simple data.</li> <li>• Record and communicate their findings in a range of ways.</li> <li>• Can show my results in a table that my teacher has provided.</li> <li>• Identify and classify. Observe and identify, compare and describe.</li> <li>• Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.</li> <li>• Use simple secondary sources to find answers.</li> <li>• Can find information to help me from books and computers with help</li> <li>• Talk about what they have found out and how they found it out.</li> <li>• To say what happened in my investigation.</li> <li>• To say whether I was surprised at the results or not.</li> <li>• To say what I would change about my investigation.</li> </ul>		<p>about which types of enquiry will be the best way of answering questions</p> <ul style="list-style-type: none"> <li>• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>• Learn to use new equipment appropriately (eg data loggers).</li> <li>• Can see a pattern in my results.</li> <li>• Can choose from a selection of equipment.</li> <li>• Can observe and measure accurately using standard units including time in minutes and seconds.</li> <li>• Set up simple practical enquiries, comparative and fair tests.</li> <li>• Recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>• Can think of more than one variable factor.</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</li> </ul>	<p>begin to recognise how these ideas help them to understand how the world operates.</p> <ul style="list-style-type: none"> <li>• Begin to recognise scientific ideas change and develop over time. Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry</li> <li>• Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Begin to identify patterns that might be found in the natural environment.</li> <li>• Begin to 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.</li> <li>• Choose the most appropriate equipment and explain how to use it accurately. Begin to interpret data and find patterns.</li> <li>• Select equipment on my own. Can make a set of observations and say what the interval and range are.</li> <li>• Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line</li> <li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li> <li>• Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</li> <li>• Begin to suggest</li> </ul>	
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<ul style="list-style-type: none"> <li>To begin to say what I would change about my investigation.</li> </ul>			<p>of results and conclusions.</p> <ul style="list-style-type: none"> <li>Use notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>Can record results in tables and bar charts.</li> <li>Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>Talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>Compare and group according to behaviour or properties, based on testing.</li> <li>Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> <li>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>Use straightforward scientific evidence to answer questions or to support their findings.</li> <li>With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>Can see a pattern in my results.</li> <li>Can say what I found out, linking cause and effect.</li> <li>Can say how I could make it better.</li> <li>Can answer questions</li> </ul>	<p>improvements to my method and give reasons.</p> <ul style="list-style-type: none"> <li>Begin to decide when it is appropriate to do a fair test.</li> <li>Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li> <li>Begin to report and present findings from enquiries.</li> <li>Begin to decide how to record data from a choice of familiar approaches.</li> <li>Begin to choose how best to present data.</li> <li>Begin to use and develop keys and other information records to identify, classify and describe living things and materials.</li> <li>Begin to recognise which secondary sources will be most useful to research their ideas.</li> <li>Am beginning to 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> <li>Begin to identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</li> <li>Begin to use test results to make predictions to set up further comparatives and fair</li> </ul>	
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			from what I have found out	tests. <ul style="list-style-type: none"> <li>• Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Begin to separate opinion from fact.</li> <li>• Begin to draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> <li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li> </ul>	
<b>Links to prior learning:</b> EYFS, Naming common materials in the indoor and outdoor areas Exploring natural materials using their senses	<b>Links to prior learning:</b> Y1, Identifying and comparing common everyday materials, suitability of materials,	<b>Links to prior learning:</b>	<b>Links to prior learning:</b> Y1, Naming common materials Y2, Identifying and comparing common everyday materials	<b>Links to prior learning:</b> Y2, Describing materials and their properties Y4, Solid, liquid and gases, Changing state	<b>Links to prior learning:</b>
<b>Links to future learning:</b> Y2, Identifying and comparing common everyday materials, suitability of materials, Y4, Comparing and grouping materials Y5, Properties of materials	<b>Links to future learning:</b> Y4, Compare and grouping materials Y5, Properties of materials	<b>Links to future learning:</b>	<b>Links to future learning:</b> Y5, Solid, liquid and gas, Reversible and irreversible changes	<b>Links to future learning:</b> KS3 - Chemistry - The particulate nature of matter Atoms, elements and compounds Pure and impure substances Chemical reactions Energetics The Periodic Table Materials  Physics - Matter	<b>Links to future learning:</b>

## Science Overview

### Rocks



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

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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	<b>Subject Content:</b> <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>	Subject Content:	Subject Content:	Subject Content:
Essential Knowledge:	Essential Knowledge:	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>• Compare and group together different kinds of rocks (sedimentary, igneous, metamorphic) on the basis of their appearance and simple physical properties</li> <li>• durable, permeable, impermeable, density.</li> <li>• Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>• Know that Mary Anning made significant discoveries impacting palaeontology.</li> <li>• Recognise that soils are made from rocks and organic matter and describe the four processes of soil formation ( addition,</li> </ul>	Essential Knowledge:	Essential Knowledge:	Essential Knowledge:

		losses, translocations and transformation).			
<b>Essential Skills</b>	<b>Essential Skills</b>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>• Ask some relevant questions and use different types of scientific enquiries to answer them.</li> <li>• Begin to explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>• Begin to develop their ideas about functions, relationships and interactions.</li> <li>• Begin to raise their own questions about the world around them.</li> <li>• Begin to make some decisions about which types of enquiry will be the best way of answering questions</li> <li>• Begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>• Learn to use some new equipment appropriately (eg data loggers).</li> <li>• Begin to see a pattern in my results.</li> <li>• Begin to choose from a selection of equipment.</li> <li>• Begin to observe and measure accurately using standard units</li> </ul>	<b>Essential Skills</b>	<b>Essential Skills</b>	<b>Essential Skills</b>

including time in minutes and seconds.

- Set up some simple practical enquiries, comparative and fair tests.
- Begin to recognise when a simple fair test is necessary and help to decide how to set it up.
- Begin to think of more than one variable factor
- Gather, record, and begin to classify and present data in a variety of ways to help in answering questions.
- Begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.
- Begin to record results in tables and bar charts.
- Begin to identify differences, similarities or changes related to simple scientific ideas and processes.
- Begin to talk about criteria for grouping, sorting and classifying and use simple keys.
- Begin to compare and group according to behaviour or properties, based on testing.
- Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.
- I am beginning to use results to draw simple conclusions, make predictions for new

		<p>values, suggest improvements and raise further questions.</p> <ul style="list-style-type: none"> <li>• Am beginning to use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• Am beginning to see a pattern in my results. Am beginning to say what I found out, linking cause and effect.</li> <li>• Am beginning to say how I could make it better.</li> <li>• Am beginning to answer questions from what I have found out.</li> </ul>			
Links to prior learning:	Links to prior learning:	Links to prior learning: EYFS, Naming materials	Links to prior learning:	Links to prior learning:	Links to prior learning:
Links to future learning:	Links to future learning:	Links to future learning: ,KS3 - Chemistry - Earth and atmosphere	Links to future learning:	Links to future learning:	Links to future learning: KS3 -

# Science Overview

## Forces and Magnets



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

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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	<b>Subject Content:</b> <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 some magnetic materials</li> <li>• Describe magnets as having two poles.</li> <li>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>	Subject Content:	<b>Subject Content:</b> <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>	Subject Content:
Essential Knowledge:	Essential Knowledge:	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>• Know that some forces need contact between 2 objects ( pushes and pulls), but magnetic forces can act at a distance.</li> <li>• Investigate how different surfaces can cause more or less friction.</li> <li>• Know magnets attract or repel each other and attract some materials and not others.</li> </ul>	Essential Knowledge:	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>• Know that forces change the motion of an object – make it start, move, speed up, slow down or change shape.</li> <li>• Know that unsupported objects fall towards the Earth due to the pulling force of gravity.</li> <li>• Know and identify effects of friction, air resistance and water resistance.</li> </ul>	Essential Knowledge:

		<ul style="list-style-type: none"> <li>Describe magnets as having 2 poles.</li> </ul>		<ul style="list-style-type: none"> <li>Understand how these can be affected by different variables, e.g. mass, surface, shape, streamlining.</li> <li>Know that levers, gears and pulleys allow a smaller force has a greater effect.</li> </ul>	
<b>Essential Skills</b>	<b>Essential Skills</b>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask some relevant questions and use different types of scientific enquiries to answer them.</li> <li>Begin to explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>Begin to develop their ideas about functions, relationships and interactions.</li> <li>Begin to raise their own questions about the world around them.</li> <li>Begin to make some decisions about which types of enquiry will be the best way of answering questions</li> <li>Begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>Learn to use some new equipment appropriately (eg data</li> </ul>	<b>Essential Skills</b>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.</li> <li>Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li> <li>Begin to recognise scientific ideas change and develop over time. Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry</li> <li>Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Begin to identify patterns that might be found in the natural environment.</li> <li>Begin to make their own decisions about what observations to make, what measurements to use and how long to make them for and whether to</li> </ul>	<b>Essential Skills</b>

loggers).

- Begin to see a pattern in my results.
- Begin to choose from a selection of equipment.
- Begin to observe and measure accurately using standard units including time in minutes and seconds.
- Set up some simple practical enquiries, comparative and fair tests.
- Begin to recognise when a simple fair test is necessary and help to decide how to set it up.
- Begin to think of more than one variable factor
- Gather, record, and begin to classify and present data in a variety of ways to help in answering questions.
- Begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.
- Begin to record results in tables and bar charts.
- Begin to identify differences, similarities or changes related to simple scientific ideas and processes.
- Begin to talk about criteria for grouping, sorting and classifying and use simple keys.
- Begin to compare and group according to behaviour or properties, based on testing.
- Begin to recognise when and how secondary sources

repeat them.

- Choose the most appropriate equipment and explain how to use it accurately. Begin to interpret data and find patterns.
- Select equipment on my own. Can make a set of observations and say what the interval and range are.
- Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec  
Graphs – pie, line
- Begin to use test results to make predictions to set up further comparative and fair tests.
- Begin to recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.
- Begin to suggest improvements to my method and give reasons.
- Begin to decide when it is appropriate to do a fair test.
- Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.
- Begin to report and present findings from enquiries.
- Begin to decide how to record data from a choice of familiar approaches.
- Begin to choose how best to present data.
- Begin to use and develop keys and other information records to identify, classify and describe living things and materials.



might help to answer questions that cannot be answered through practical investigations.

- I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Am beginning to use straightforward scientific evidence to answer questions or to support their findings.
- With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.
- With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving what they have already done.
- Am beginning to see a pattern in my results. Am beginning to say what I found out, linking cause and effect.
- Am beginning to say how I could make it better.
- Am beginning to answer questions from what I have found out.

- Begin to recognise which secondary sources will be most useful to research their ideas.
- Am beginning to 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.
- Begin to identify scientific evidence that has been used to support or refute ideas or arguments.
- Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.
- Begin to use test results to make predictions to set up further comparatives and fair tests.
- Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas.
- Use their results to identify when further tests and observations are needed.
- Begin to separate opinion from fact.
- Begin to draw conclusions and identify scientific evidence.
- Can use simple models.
- Know which evidence proves a scientific point.
- Begin to use test results to make predictions to set up further comparative and fair tests.

Links to prior learning:	Links to prior learning:	Links to prior learning: EYFS, Magnetic and not magnetic vocabulary and what is and what is not, exploration of surfaces and ramps	Links to prior learning:	Links to prior learning: EYFS, exploration of surfaces and ramps Y3, Forces and surfaces	Links to prior learning:
Links to future learning:	Links to future learning:	Links to future learning: Y5, Forces and surfaces	Links to future learning:	Links to future learning: KS3 - Physics - Motion and forces Electricity and electromagnetism	Links to future learning:

# Science Overview

## Sound



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	Subject Content:	<b>Subject Content:</b> <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>	Subject Content:	Subject Content:
Essential Knowledge:	Essential Knowledge:	Essential Knowledge:	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>• Know that sound is made when objects vibrate the air molecules nearby, causing a sound wave.</li> <li>• Know main parts of the ear (outer ear, middle ear, inner ear, auditory canal, ear drum, ossicles, cochlea, auditory nerve)</li> <li>• Know that vibrations from sounds travel through a medium (solid, liquid, gas) to the ear.</li> <li>• Know pitch is how high or low a sound is and that the faster the vibrations, the higher the pitch.</li> <li>• Know that the louder the sound (volume), the bigger the vibration</li> </ul>	Essential Knowledge:	Essential Knowledge:

			<p>(amplitude).</p> <ul style="list-style-type: none"> <li>• Know that sounds get fainter as the distance from the sound source increases.</li> </ul>		
<b>Essential Skills</b>	<b>Essential Skills</b>	<b>Essential Skills</b>	<ul style="list-style-type: none"> <li>• Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>• Explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>• Begin to develop their ideas about functions, relationships and interactions.</li> <li>• Raise their own questions about the world around them.</li> <li>• Make some decisions about which types of enquiry will be the best way of answering questions</li> <li>• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>• Learn to use new equipment appropriately (eg data loggers).</li> <li>• Can see a pattern in my results.</li> <li>• Can choose from a selection of equipment.</li> <li>• Can observe and measure accurately using standard units</li> </ul>	<b>Essential Skills</b>	<b>Essential Skills</b>

including time in minutes and seconds.

- Set up simple practical enquiries, comparative and fair tests.
- Recognise when a simple fair test is necessary and help to decide how to set it up.
- Can think of more than one variable factor.
- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use notes, simple tables and standard units and help to decide how to record and analyse their data.
- Can record results in tables and bar charts.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Talk about criteria for grouping, sorting and classifying and use simple keys.
- Compare and group according to behaviour or properties, based on testing.
- Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Use straightforward

			<p>scientific evidence to answer questions or to support their findings.</p> <ul style="list-style-type: none"> <li>• With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• Can see a pattern in my results.</li> <li>• Can say what I found out, linking cause and effect.</li> <li>• Can say how I could make it better.</li> <li>• Can answer questions from what I have found out</li> </ul>		
Links to prior learning:	Links to prior learning:	Links to prior learning:	Links to prior learning: EYFS, knowing the ear is for listening, familiar common sounds	Links to prior learning:	Links to prior learning:
Links to future learning:	Links to future learning:	Links to future learning:	Links to future learning: KS3 - Physics - Waves	Links to future learning:	Links to future learning:

Science Overview					
Electricity					
<p>The national curriculum for Science aims to ensure that all pupils:</p> <ul style="list-style-type: none"> <li>• The national curriculum for science 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.</li> </ul>					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	Subject Content:	<p>Subject Content:</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</li> </ul>	Subject Content:	<p>Subject Content:</p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>Compare and give reasons for variations in how components function, including the</p>



			<p>cells, wires, bulbs, switches and buzzers.</p> <ul style="list-style-type: none"> <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>brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b>	<b>Essential Knowledge:</b>	<p><b>Essential Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity.</li> <li>• Describe common conductors (metals such as copper, iron and steel) and insulators (plastic, wood, rubber).</li> <li>• Identify and name basic parts of a simple series electrical circuit (cells, wires, bulbs, switches and buzzers)</li> <li>• Know that a switch opens and closes a circuit.</li> </ul>	<b>Essential Knowledge:</b>	<p><b>Essential Knowledge:</b></p> <p>Explain the difference between non-renewable and renewable mains power.</p> <p>Use symbols when drawing a simple circuit diagram.</p> <p>Associate the brightness of a lamp with the number and voltage of cells in a circuit.</p> <p>Explain how electricity is made.</p>
<b>Essential Skills</b>	<b>Essential Skills</b>	<b>Essential Skills</b>	<ul style="list-style-type: none"> <li>• Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>• Explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>• Begin to develop their ideas about functions, relationships and interactions.</li> <li>• Raise their own questions about the world around them.</li> <li>• Make some decisions about which types of enquiry will be the best way of answering</li> </ul>	<b>Essential Skills</b>	<p><b>Essential Skills</b></p> <p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically. Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates. Begin to recognise scientific ideas change and develop over time. Select the most appropriate ways to answer science questions using</p>

			<p>questions</p> <ul style="list-style-type: none"> <li>• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> <li>• Learn to use new equipment appropriately (eg data loggers).</li> <li>• Can see a pattern in my results.</li> <li>• Can choose from a selection of equipment.</li> <li>• Can observe and measure accurately using standard units including time in minutes and seconds.</li> <li>• Set up simple practical enquiries, comparative and fair tests.</li> <li>• Recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>• Can think of more than one variable factor.</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> </ul>		<p>different types of scientific enquiry.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Identify patterns that might be found in the natural environment. 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. Choose the most appropriate equipment and explain how to use it accurately. Can interpret data and find patterns. Select equipment on my own. Can make a set of observations and say what the interval and range are. Accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line, bar (Year 6)</p> <p>Use test results to make predictions to set up further comparative and fair tests. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Suggest improvements to my method and give reasons. Decide when it is appropriate to do a fair test.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. Report and present findings from enquiries. Decide how to record data from a choice of familiar approaches. Can choose how best to present data</p> <p>Use and develop keys and other information records to identify, classify and describe living things and materials.</p> <p>Recognise which secondary sources will be most useful to research their ideas.</p>
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			<ul style="list-style-type: none"> <li>● Use notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>● Can record results in tables and bar charts.</li> <li>● Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>● Talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>● Compare and group according to behaviour or properties, based on testing.</li> <li>● Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> <li>● Using results to draw simple conclusions , make predictions for new values, suggest improvements and raise further questions.</li> <li>● Use straightforward scientific evidence to answer questions or to support their findings.</li> <li>● With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>● With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>● Can see a pattern in my results.</li> <li>● Can say what I found out, linking cause and effect.</li> <li>● Can say how I could make it better.</li> <li>● Can answer questions from what I have found</li> </ul>		<p>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. Identify scientific evidence that has been used to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings. Use test results to make predictions to set up further comparatives and fair tests. Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Use their results to identify when further tests and observations are needed. Separate opinion from fact. Can draw conclusions and identify scientific evidence. Can use simple models. Know which evidence proves a scientific point. Use test results to make predictions to set up further comparative and fair tests.</p>
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Links to prior learning:	Links to prior learning:	Links to prior learning:	Links to prior learning: EYFS, Understanding the world	Links to prior learning:	Links to prior learning: Y4, Electricity - knowing common appliances that run on electricity, circuits
Links to future learning:	Links to future learning:	Links to future learning:	Links to future learning: Y6, Electricity - knowing common appliances that run on electricity, circuits	Links to future learning:	Links to future learning: KS3 - Physics - Waves Electricity and electromagnetism

## Science Overview

### Light



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	<b>Subject Content:</b> <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 an opaque object.</li> <li>Find patterns in the way that the size of shadows changes.</li> </ul>	Subject Content:	Subject Content:	<b>Subject Content:</b> <p>Recognise that light appears to travel in straight lines ☐ 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 ☐ 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 ☐ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
Essential Knowledge:	Essential Knowledge:	<b>Essential Knowledge:</b> <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</li> </ul>	Essential Knowledge:	Essential Knowledge:	<b>Essential Knowledge:</b> <p>Light travels in straight lines. - When there is an opaque object blocking the light, a shadow is formed. Shadows have the same shape</p>

		<p>reflected from surfaces.</p> <ul style="list-style-type: none"> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes and skin.</li> <li>Know how shadows are formed and which objects are more likely to form a shadow: transparent, translucent or opaque.</li> </ul>			<p>as the opaque objects that cast them.</p> <p>Light can travel through transparent objects.</p> <p>Some light can travel through translucent objects.</p> <p>Light consists of a spectrum of colour: red, orange, yellow, green, blue, indigo and violet.</p> <p>Light travels at a different speed through water which can cause refraction – making objects look larger than they are.</p>
<b>Essential Skills</b>	<b>Essential Skills</b>	<p><b>Essential Skills</b></p> <ul style="list-style-type: none"> <li>Ask some relevant questions and use different types of scientific enquiries to answer them.</li> <li>Begin to explore everyday phenomena and the relationships between living things and familiar environments.</li> <li>Begin to develop their ideas about functions, relationships and interactions.</li> <li>Begin to raise their own questions about the world around them.</li> <li>Begin to make some decisions about which types of enquiry will be the best way of answering questions</li> <li>Begin to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>Help to make decisions about what observations to make, how long to make them for and the type of</li> </ul>	<b>Essential Skills</b>	<b>Essential Skills</b>	<p><b>Essential Skills</b></p> <p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically. Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates. Begin to recognise scientific ideas change and develop over time. Select the most appropriate ways to answer science questions using different types of scientific enquiry.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Identify patterns that might be found in the natural environment. 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. Choose the most appropriate equipment and explain how to use it accurately. Can interpret data and find patterns. Select equipment on my own. Can make a set of observations and say what the interval and range are. Accurate and precise measurements – N, g, kg, mm,</p>

		<p>simple equipment that might be used.</p> <ul style="list-style-type: none"> <li>● Learn to use some new equipment appropriately (eg data loggers).</li> <li>● Begin to see a pattern in my results.</li> <li>● Begin to choose from a selection of equipment.</li> <li>● Begin to observe and measure accurately using standard units including time in minutes and seconds.</li> <li>● Set up some simple practical enquiries, comparative and fair tests.</li> <li>● Begin to recognise when a simple fair test is necessary and help to decide how to set it up.</li> <li>● Begin to think of more than one variable factor</li> <li>● Gather, record, and begin to classify and present data in a variety of ways to help in answering questions.</li> <li>● Begin to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</li> <li>● Begin to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>● Begin to use notes, simple tables and standard units and help to decide how to record and analyse their data.</li> <li>● Begin to record results in tables and bar charts.</li> <li>● Begin to identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>● Begin to talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>● Begin to compare and group according to</li> </ul>			<p>cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line, bar (Year 6)</p> <p>Use test results to make predictions to set up further comparative and fair tests. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Suggest improvements to my method and give reasons. Decide when it is appropriate to do a fair test.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. Report and present findings from enquiries. Decide how to record data from a choice of familiar approaches. Can choose how best to present data</p> <p>Use and develop keys and other information records to identify, classify and describe living things and materials.</p> <p>Recognise which secondary sources will be most useful to research their ideas.</p> <p>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. Identify scientific evidence that has been used to support or refute ideas or arguments. Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings. Use test results to make predictions to set up further comparatives and fair tests. Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Use their results to identify when further tests and</p>
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		<p>behaviour or properties, based on testing.</p> <ul style="list-style-type: none"> <li>• Begin to recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations.</li> <li>• I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> <li>• Am beginning to use straightforward scientific evidence to answer questions or to support their findings.</li> <li>• With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.</li> <li>• With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving what they have already done.</li> <li>• Am beginning to see a pattern in my results. Am beginning to say what I found out, linking cause and effect.</li> <li>• Am beginning to say how I could make it better.</li> <li>• Am beginning to answer questions from what I have found out.</li> </ul>			<p>observations are needed. Separate opinion from fact. Can draw conclusions and identify scientific evidence. Can use simple models. Know which evidence proves a scientific point. Use test results to make predictions to set up further comparative and fair tests.</p>
Links to prior learning:	Links to prior learning:	<p><b>Links to prior learning:</b> EYFS, Understanding the world - recognising dark and light</p>	Links to prior learning:	Links to prior learning:	<p><b>Links to prior learning:</b> EYFS, Understanding the world Y3, Light - Shadows, reflection from surfaces,</p>
Links to future learning:	Links to future learning:	<p><b>Links to future learning:</b> Y6, Light - Shadows, reflection from surfaces,</p>	Links to future learning:	Links to future learning:	<p><b>Links to future learning:</b> KS3 - Physics - Waves Space physics</p>

# Science Overview

## Earth and Space



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

- The national curriculum for science 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.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content:	Subject Content:	Subject Content:	Subject Content:	<b>Subject Content:</b> <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>	Subject Content:
Essential Knowledge:	Essential Knowledge:	Essential Knowledge:	Essential Knowledge:	<b>Essential Knowledge:</b> <ul style="list-style-type: none"> <li>• Know the movements of the Earth, Sun and Moon including length of time to orbit.</li> <li>• Know what causes night and day and why night and day varies in different parts of the world</li> <li>• List the names and order of the planets in the Solar System</li> </ul>	Essential Knowledge:
Essential Skills	Essential Skills	Essential Skills	Essential Skills	<b>Essential Skills</b> <ul style="list-style-type: none"> <li>• Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more</li> </ul>	Essential Skills

				<p>systematically.</p> <ul style="list-style-type: none"><li>• Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.</li><li>• Begin to recognise scientific ideas change and develop over time. Begin to select the most appropriate ways to answer science questions using different types of scientific enquiry</li><li>• Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. Begin to identify patterns that might be found in the natural environment.</li><li>• Begin to 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.</li><li>• Choose the most appropriate equipment and explain how to use it accurately. Begin to interpret data and find patterns.</li><li>• Select equipment on my own. Can make a set of observations and say what the interval and range are.</li><li>• Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm<sup>2</sup>V, km/h, m per sec, m/ sec Graphs – pie, line</li><li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li><li>• Begin to recognise</li></ul>	
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				<p>when and how to set up comparative and fair tests and explain which variables need to be controlled and why.</p> <ul style="list-style-type: none"><li>• Begin to suggest improvements to my method and give reasons.</li><li>• Begin to decide when it is appropriate to do a fair test.</li><li>• Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.</li><li>• Begin to report and present findings from enquiries.</li><li>• Begin to decide how to record data from a choice of familiar approaches.</li><li>• Begin to choose how best to present data.</li><li>• Begin to use and develop keys and other information records to identify, classify and describe living things and materials.</li><li>• Begin to recognise which secondary sources will be most useful to research their ideas.</li><li>• Am beginning to 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><li>• Begin to identify scientific evidence that has been used to support or refute ideas or arguments.</li><li>• Begin to draw conclusions based on their data and observations, use</li></ul>	
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				<p>evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.</p> <ul style="list-style-type: none"> <li>• Begin to use test results to make predictions to set up further comparatives and fair tests.</li> <li>• Begin to look for different causal relationships in their data and identify evidence that refutes or supports their ideas.</li> <li>• Use their results to identify when further tests and observations are needed.</li> <li>• Begin to separate opinion from fact.</li> <li>• Begin to draw conclusions and identify scientific evidence.</li> <li>• Can use simple models.</li> <li>• Know which evidence proves a scientific point.</li> <li>• Begin to use test results to make predictions to set up further comparative and fair tests.</li> </ul>	
Links to prior learning:	Links to prior learning:	Links to prior learning:	Links to prior learning:	<p><b>Links to prior learning:</b> EYFS, Understanding the world - naming the planets, astronauts experiences in space</p>	Links to prior learning:
Links to future learning:	Links to future learning:	Links to future learning:	Links to future learning:	<p><b>Links to future learning:</b> KS3 - Chemistry - Earth and atmosphere Physics - Space physics</p>	Links to future learning: