



Purpose of Study

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

Aims

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

Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Opportunities for Personal, Social Health Education

- Children study environmental issues through Science and learn how to respect the environment they live in. They also look at the effects of human activity on the environment.
- Children learn the importance of healthy living and lifestyles and the effects of an unbalanced and inactive lifestyle.
- Children learn to respect and protect the habitats of all living things
- Children develop exploration and problem solving skills

Subject Content

Early Years/Foundation Stage

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Key-stage 1

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

‘Working scientifically’ is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.

See appendix 2 for programme of study

Key-stage 2: Lower Key Stage two (Years 3 and 4)

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

‘Working scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

See appendix 3 for programme of study

Key Stage Two: Upper Key Stage Two (Years 5 and 6)

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most

appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

‘Working and thinking scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

See appendix 4 for programme of study

How is Science taught throughout the school?

See Appendix 1- Medium Term Plans

Inclusion and Equal Opportunities

At our school we teach Science to all children, whatever their ability. All children are provided with equal access to the Science curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Science teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child’s different needs. Assessment against the National Curriculum allows us to consider each child’s attainment and progress against expected attainment outcomes. When pupils are working below the expected outcome within Science, differentiated activities including considering the classroom organisation, teaching materials and teaching style is considered so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the children’s needs.

Pupils on the Special Educational Needs register, including those on Health Care Plans, One Plans along with targeted pupils may have specific Science related targets where a priority is appropriate.

Assessment & Reporting

We assess children’s work in Science by making informal judgements as we observe them during each Science lesson. On completion of a piece of work, the teacher marks the work and comments as necessary, in line with the marking policy. At the end of a unit of work, the teacher makes a summary judgement about the work of each pupil if they are emerging, working at expected or exceeding the unit outcome. We use this as a basis for assessing the progress of the child at the end of the year. The Science subject leader keeps samples of children’s work in a portfolio. These demonstrate what the expected end of year outcomes are in Science for each year group.

See Appendix 5 - Assessment Grids

Resources

The school is well resourced for the teaching of Science. Where new units and programmes of study have been introduced with the new curriculum, budgets have been allocated to the subject leaders to resource these areas to support teaching and learning.

We do not follow any specific schemes for the teaching of Science, however resources include materials from Science.

Monitoring and Review

Monitoring of the standards of children's work and of the quality of teaching in Science is the responsibility of the Science subject leader. The work of the Science subject leader also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Policy Review

This policy was written September 2014 by the Science Subject Leader and Senior Management Team and will be reviewed every 3 years unless the need for review arises beforehand.

Appendix 1

Year 1

Subject	<u>Autumn</u> Animals and me	<i>IDEAS</i>	<u>Spring</u> Where we Live	<i>IDEAS</i>	<u>Summer</u> Fire and Ice	<i>IDEAS</i>
Science	<p>Sc1/2.2 Animals including humans</p> <p>Sc1/2.2a identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals</p> <p>Sc1/2.2b identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Sc1/2.2c describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</p> <p>Sc1/2.2d identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Sc1/1 Working Scientifically</p> <p>Sc1/1.1 asking simple questions and recognising that they can be</p>	<p>Life Cycles</p> <ul style="list-style-type: none"> -zoo or sea life -Food chains and habitats. -Comparing themselves to animals. -Senses -How many have blonde hair, brown hair etc. 	<p>Sc1/2.1 Plants</p> <p>Sc1/2.1a identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Sc1/2.1b identify and describe the basic structure of a variety of common flowering plants, including trees</p> <p>Sc1/1.2 observing closely, using simple equipment</p>	<ul style="list-style-type: none"> -Growing plants and naming them. -Predicting how they will grow without light/water 	<p>Sc1/3.1 Everyday materials</p> <p>Sc1/3.1a distinguish between an object and the material from which it is made</p> <p>Sc1/3.1b identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>Sc1/3.1c describe the simple physical properties of a variety of everyday materials</p> <p>Sc1/3.1d compare and group together a variety of everyday materials on the basis of their simple physical properties</p> <p>Sc1/4.1 Seasonal Changes</p> <p>Sc1/4.1a observe changes</p>	<ul style="list-style-type: none"> -Melting ice. Predicting changes. -Looking at materials and what is made from them. -Seasonal changes.

	<p>answered in different ways</p> <p>Sc1/1.4 identifying and classifying</p> <p>Sc1/1.5 using their observations and ideas to suggest answers to questions</p> <p>Sc1/1.6 gathering and recording data to help in answering questions.</p>				<p>across the 4 seasons</p> <p>Sc1/4.1b observe and describe weather associated with the seasons and how day length varies</p> <p>Sc1/1.3 performing simple tests</p>	
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Subject	<u>Autumn</u> Great Fire of London	<i>IDEAS</i>	<u>Spring</u> Living And growing	<i>IDEAS</i>	<u>Summer</u> Florence Nightingale	<i>IDEAS</i>
Science	<p>Sc2/3.1 Uses of everyday materials</p> <p>Sc2/3.1a identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses</p> <p>Sc2/3.1b compare how things move on different surfaces.</p> <p>Sc2/3.1c find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>Sc2/1 Working Scientifically</p> <p>Sc2/1.1 asking simple questions and recognising that</p>		<p>Sc2/2.1 Living things and their habitats</p> <p>Sc2/2.1a explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>Sc2/2.1b 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</p> <p>Sc2/2.1c identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>Sc2/2.1d 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.</p> <p>Sc2/2.2 Plants</p>		<p>Sc2/2.3 Animals including humans</p> <p>Sc2/2.3a notice that animals, including humans, have offspring which grow into adults</p> <p>Sc2/2.3b find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Sc2/2.3c describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Sc2/1 Working Scientifically</p> <p>Sc2/1.4 identifying and classifying</p> <p>Sc2/1.6 gathering and recording data to help in</p>	

	<p>they can be answered in different ways</p> <p>Sc2/1.2 observing closely, using simple equipment</p> <p>Sc2/1.3 performing simple tests</p> <p>Sc2/1.4 identifying and classifying</p>		<p>Sc2/2.2a observe and describe how seeds and bulbs grow into mature plants</p> <p>Sc2/2.2b find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>Sc2/1 Working Scientifically</p> <p>Sc2/1.2 observing closely, using simple equipment</p> <p>Sc2/1.5 using their observations and ideas to suggest answers to questions</p> <p>Sc2/1.1 asking simple questions and recognising that they can be answered in different ways</p>		<p>answering questions.</p> <p>Sc2/1.1 asking simple questions and recognising that they can be answered in different ways</p>	
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Subject	<u>Autumn</u> Mountain and Volcanoes	<i>IDEAS</i>	<u>Spring</u> Romans	<i>IDEAS</i>	<u>Summer</u> Rainforests	<i>IDEAS</i>
Science	<p>Sc3/3.1 Rocks</p> <p>Sc3/3.1a compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Sc3/3.1b describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Sc3/3.1c recognise that soils are made from rocks and organic matter.</p> <p>Sc3/4.1 Light</p> <p>Sc3/4.1a recognise that they need light in order to see things and that dark is the absence of light</p> <p>Sc3/4.1b notice that light is reflected from surfaces</p> <p>Sc3/4.1c recognise that light from the sun can be</p>	<p>Natural History Museum.</p> <p>Shadow stories.</p> <p>Collecting light data from around the school.</p>	<p>Sc3/4.2a compare how things move on different surfaces</p> <p>Sc3/4.2b notice that some forces need contact between 2 objects, but magnetic forces can act at a distance to surfaces</p> <p>Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others</p> <p>Sc3/4.2d 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</p> <p>Sc3/4.2e describe magnets as having 2 poles</p> <p>Sc3/4.2f predict</p>	<p>Trojan horse - development forces and magnets.</p> <p>Roman Roads and testing a structure</p>	<p>Sc3/2.1 Plants</p> <p>Sc3/2.1a identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Sc3/2.1b 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</p> <p>Sc3/2.1c investigate the way in which water is transported within plants</p> <p>Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	

	<p>dangerous and that there are ways to protect their eyes</p> <p>Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Sc3/4.1e find patterns in the way that the size of shadows change.</p> <p>Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or</p>		<p>whether 2 magnets will attract or repel each other, depending on which poles are facing.</p> <p>Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Sc4/1.2 setting up simple practical enquiries, comparative and fair tests</p> <p>Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>		<p>Sc3/2.2 Animals including humans</p> <p>Sc3/2.2a 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</p> <p>Sc3/2.2b identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p>	
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	<p>presentations of results and conclusions</p> <p>Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>		<p>Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings.</p>			
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Subject	<u>Autumn</u>	<i>IDEAS</i>	<u>Spring</u>	<i>IDEAS</i>	<u>Summer</u>	<i>IDEAS</i>
Science	<p data-bbox="338 284 427 308">Rivers</p> <p data-bbox="338 323 689 347">Sc4/3.1 States of Matter</p> <p data-bbox="338 400 689 544">Sc4/3.1a compare and group materials together, according to whether they are solids, liquids or gases</p> <p data-bbox="338 596 730 858">Sc4/3.1b 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)</p> <p data-bbox="338 911 703 1129">Sc4/3.1c identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p data-bbox="338 1225 562 1289">Sc4/1 Working Scientifically</p> <p data-bbox="338 1378 703 1481">During years 3 and 4, pupils should be taught to use the following practical scientific</p>		<p data-bbox="978 284 1167 308">Ancient Egypt</p> <p data-bbox="978 323 1323 347">Sc4/2.1 All Living Things</p> <p data-bbox="978 400 1346 507">Sc4/2.1a recognise that living things can be grouped in a variety of ways</p> <p data-bbox="978 560 1346 778">Sc4/2.1b explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p data-bbox="978 831 1352 1018">Sc4/2.1c recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p data-bbox="978 1107 1346 1171">Sc4/2.2 Animals including humans</p> <p data-bbox="978 1225 1330 1369">Sc4/2.2a describe the simple functions of the basic parts of the digestive system in humans</p> <p data-bbox="978 1422 1317 1481">Sc4/2.2b identify the different types of teeth in</p>		<p data-bbox="1523 284 1809 308">A Musical Adventure</p> <p data-bbox="1523 323 1742 347">Sc4/4.1 Sound</p> <p data-bbox="1523 400 1935 523">Sc4/4.1a identify how sounds are made, associating some of them with something vibrating</p> <p data-bbox="1523 612 1912 735">Sc4/4.1b recognise that vibrations from sounds travel through a medium to the ear</p> <p data-bbox="1523 847 1928 1018">Sc4/4.1c find patterns between the pitch of a sound and features of the object that produced it</p> <p data-bbox="1523 1129 1921 1289">Sc4/4.1d find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p data-bbox="1523 1410 1861 1481">Sc4/4.1e recognise that sounds get fainter as the</p>	

	<p>methods, processes and skills through the teaching of the programme of study content:</p> <p>Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Sc4/1.2 setting up simple practical enquiries, comparative and fair tests</p> <p>Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Sc4/1.6 reporting on findings from enquiries,</p>		<p>humans and their simple functions</p> <p>Sc4/2.2c construct and interpret a variety of food chains, identifying producers, predators and prey.</p>		<p>distance from the sound source increases</p> <p>Sc4/4.2 Electricity</p> <p>Sc4/4.2a identify common appliances that run on electricity</p> <p>Sc4/4.2b construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Sc4/4.2c 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</p> <p>Sc4/4.2d recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p>	
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	<p>including oral and written explanations, displays or presentations of results and conclusions</p> <p>Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings.</p>				<p>Sc4/4.2e recognise some common conductors and insulators, and associate metals with being good conductors.</p>	
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Subject	<u>Autumn</u> World War 2	<i>IDEAS</i>	<u>Spring</u> Inventors, Inventions, Explorers	<i>IDEAS</i>	<u>Summer</u> Ancient Greeks	<i>IDEAS</i>
Science	<p>Sc5/3.1 Properties and Changes of Materials Sc5/3.1a 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</p> <p>Sc5/3.1b know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Sc5/3.1c use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Sc5/3.1d give reasons, based on evidence from</p>	Materials used for: parachutes Helmets Shelters	<p>Sc5/4.1 Earth and Space Sc5/4.1a describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>Sc5/4.1b describe the movement of the Moon relative to the Earth</p> <p>Sc5/4.1c describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>Sc5/4.1d use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.</p> <p>Sc5/4.2 Forces Sc5/4.2a explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p>	<p>Link to space exploration</p> <p>Link to Newton & gravity Design of cars, friction Look at mechanisms in toys</p>	<p>Sc5/2.1 Living Things and their habitats Sc5/2.1a describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Sc5/2.1b describe the life process of reproduction in some plants and animals.</p> <p>Sc5/2.2 Animals, including humans Sc5/2.2a describe the changes as humans develop to old age.</p> <p>Sc5/1 Working Scientifically During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching</p>	

	<p>comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Sc5/3.1e demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>Sc5/3.1f 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.</p> <p>Sc5/1 Working Scientifically During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where</p>		<p>Sc5/4.2b identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Sc5/4.2c recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p> <p>Sc5/1 Working Scientifically During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision</p>		<p>of the programme of study content:</p> <p>Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision</p> <p>Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs</p> <p>Sc5/1.4 using test results to make predictions to set up further comparative and fair tests</p> <p>Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other</p>	
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	<p>necessary</p> <p>Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision</p> <p>Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs</p> <p>Sc5/1.4 using test results to make predictions to set up further comparative and fair tests</p> <p>Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations</p> <p>Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments.</p>		<p>Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs</p> <p>Sc5/1.4 using test results to make predictions to set up further comparative and fair tests</p> <p>Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations</p> <p>Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments.</p>		<p>presentations</p> <p>Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments.</p>	
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Subject	<u>Autumn</u> In the Beginning	<i>IDEAS</i>	<u>Spring</u> Anglo- Saxons	<i>IDEAS</i>	<u>Summer</u> Field Exploration	<i>IDEAS</i>
Science	<p>Evolution and Living things and their habitats</p> <p>Sc6/1 Working Scientifically During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Sc6/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Sc6/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision</p> <p>Sc6/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs</p> <p>Sc6/1.4 using test results to</p>	<p>Link living things to Evolution and adaptation.</p>	<p>Light and Electricity</p> <p>Sc6/4.1 Light</p> <p>Sc6/4.1a recognise that light appears to travel in straight lines</p> <p>Sc6/4.1b 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</p> <p>Sc6/4.1c 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</p> <p>Sc6/4.1d use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p> <p>Sc6/4.2 Electricity</p> <p>Sc6/4.2a 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>Light and Electricity</p>	<p>Animals including humans</p> <p>Sc6/2.2 Animals including humans</p> <p>Sc6/2.2a identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Sc6/2.2b recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Sc6/2.2c describe the ways in which nutrients and water are transported within animals, including humans.</p>	

	<p>make predictions to set up further comparative and fair tests</p> <p>Sc6/1.5 using simple models to describe scientific ideas</p> <p>Sc6/1.6 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations</p> <p>Sc6/1.7 identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Sc6/2.1 Living Things and their habitats</p> <p>Sc6/2.1a describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</p> <p>Sc6/2.1b give reasons for classifying plants and animals based on specific characteristics.</p>		<p>Sc6/4.2b compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>Sc6/4.2c use recognised symbols when representing a simple circuit in a diagram.</p>			
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	<p>Sc6/2.3 Evolution</p> <p>Sc6/2.3a recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>Sc6/3.2b recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>Sc6/2.3c identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>					
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	Objective	Evidence	Evidence	Evidence	Evidence	Evidence	Evidence
Working Scientifically	Can I ask simple questions and recognise that they can be answered in different ways						
	Can I observe closely, using simple equipment						
	Can I perform simple tests						
	Can I identify and classify						
	Can I use my observations and ideas to suggest answers to questions						
	Can I gather and record data to help in answering questions.						

	Year 1						
Plants	Can I identify and name a variety of common wild and garden plants, including deciduous and evergreen trees						
	Can I identify and describe the basic structure of a variety of common flowering plants, including trees						
Animals including humans	Can I identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals						
	Can I identify and name a variety of common animals that are carnivores, herbivores and omnivores						
	Can I describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)						
	Can I identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense						
Everyday Materials	Can I distinguish between an object and the material from which it is made						
	Can I identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock						
	Can I describe the simple physical properties of a variety of everyday materials						
	Can I compare and group together a variety of everyday materials on the basis of their simple physical properties						
Seasonal changes	Can I observe changes across the 4 seasons						
	Can I observe and describe weather associated with the seasons and how day length varies.						

Science Objectives

Year 2

	Objective	Evidence	Evidence	Evidence	Evidence	Evidence	Evidence
Working Scientifically	Can I ask simple questions and recognise that they can be answered in different ways						
	Can I observe closely, using simple equipment						
	Can I perform simple tests						
	Can I identify and classify						
	Can I use my observations and ideas to suggest answers to questions						
	Can I gather and record data to help in answering questions.						

Living things and their habitats	Can I explore and compare the differences between things that are living, dead, and things that have never been alive						
	Can I 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						
	Can I identify and name a variety of plants and animals in their habitats, including microhabitats						
	Can I 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.						
Plants	Can I observe and describe how seeds and bulbs grow into mature plants						
	Can I find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.						
Animals including humans	Can I notice that animals, including humans, have offspring which grow into adults						
	Can I find out about and describe the basic needs of animals, including humans, for survival (water, food and air)						
	Can I describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.						
Uses of everyday materials	Can I identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses						
	Can I compare how things move on different surfaces.						
	Can I find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching						

Science Objectives

Year 3

	Objective	Evidence	Evidence	Evidence	Evidence	Evidence	Evidence
Working Scientifically	Can I ask relevant questions and use different types of scientific enquiries to answer them						
	Can I set up simple practical enquiries, comparative and fair tests						
	Can I make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers						
	Can I gather, record, classify and present data in a variety of ways to help in answering questions						
	Can I record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables						
	Can I report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions						
	Can I use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions						
	Can I identify differences, similarities or changes related to simple scientific ideas and processes						
	Can I use straightforward scientific evidence to answer questions or to support their findings.						

	Year 3						
Plants	Can I identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers						
	Can I 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						
	Can I investigate the way in which water is transported within plants						
	Can I explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.						
Animals	Can I 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						
	Can I identify that humans and some other animals have skeletons and muscles for support, protection and movement.						
Rocks	Can I compare and group together different kinds of rocks on the basis of their appearance and simple physical properties						
	Can I describe in simple terms how fossils are formed when things that have lived are trapped within rock						
	Can I recognise that soils are made from rocks and organic matter.						
Light	Can I recognise that they need light in order to see things and that dark is the absence of light						
	Can I notice that light is reflected from surfaces						
	Can I recognise that shadows are formed when the light from a light source is blocked by a solid object						
	Can I find patterns in the way that the size of shadows change						
Forces and Magnets	Can I compare how things move on different surfaces						
	Can I notice that some forces need contact between 2 objects, but magnetic forces can act at a distance						
	Can I observe how magnets attract or repel each other and attract some materials and not others						
	Can I 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						
	Can I describe magnets as having 2 poles						
	Can I predict whether 2 magnets will attract or repel each other, depending on which poles are facing.						

Science Objectives

Year 4

	Objective	Evidence	Evidence	Evidence	Evidence	Evidence	Evidence
Working Scientifically	Can I ask relevant questions and use different types of scientific enquiries to answer them						
	Can I set up simple practical enquiries, comparative and fair tests						
	Can I make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers						
	Can I gather, record, classify and present data in a variety of ways to help in answering questions						
	Can I record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables						
	Can I report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions						
	Can I use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions						
	Can I identify differences, similarities or changes related to simple scientific ideas and processes						
	Can I use straightforward scientific evidence to answer questions or to support their findings.						

	Year 4						
All living things	Can I recognise that living things can be grouped in a variety of ways						
	Can I explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment						
	Can I recognise that environments can change and that this can sometimes pose dangers to living things.						
Animals including humans	Can I describe the simple functions of the basic parts of the digestive system in human						
	Can I identify the different types of teeth in humans and their simple functions						
	Can I identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.						
States of Matter	Can I compare and group materials together, according to whether they are solids, liquids or gases						
	Can I 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)						
	Can I recognise that soils are made from rocks and organic matter.						
Sound	Can I identify how sounds are made, associating some of them with something vibrating						
	Can I recognise that vibrations from sounds travel through a medium to the ear						
	Can I find patterns between the pitch of a sound and features of the object that produced it						
	Can I find patterns between the volume of a sound and the strength of the vibrations that produced it.						
	Can I recognise that sounds get fainter as the distance from the sound source increases						
Electricity	Can I identify common appliances that run on electricity						
	Can I construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers						
	Can I 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						
	Can I recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit						
	Can I recognise some common conductors and insulators, and associate metals with being good conductors						

Science Objectives

Year 5

	Objective	Evidence	Evidence	Evidence	Evidence	Evidence	Evidence
Working Scientifically	Can I plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary						
	Can I take measurements, using a range of scientific equipment, with increasing accuracy and precision						
	Can I record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs						
	Can I use test results to make predictions to set up further comparative and fair tests						
	Can I report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations						
	Can I identify scientific evidence that has been used to support or refute ideas or arguments.						

	Year 5						
Living things and their habitats	Can I describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird						
	Can I describe the life process of reproduction in some plants and animals.						
Animals including humans	Can I describe the changes as humans develop to old age.						
Properties and changes of materials	Can I 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						
	Can I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution						
	Can I use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating						
	Can I give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic						
	Can I demonstrate that dissolving, mixing and changes of state are reversible changes						
	Can I 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.						
Earth and Space	Can I describe the movement of the Earth, and other planets, relative to the Sun in the solar system						
	Can I describe the movement of the Moon relative to the Earth						
	Can I describe the Sun, Earth and Moon as approximately spherical bodies						
	Can I use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.						
Forces	Can I explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object						
	Can I identify the effects of air resistance, water resistance and friction, that act between moving surfaces						
	Can I recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect						

Science Objectives

Year 6

	Objective	Evidence	Evidence	Evidence	Evidence	Evidence	Evidence
Working Scientifically	Can I plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary						
	Can I take measurements, using a range of scientific equipment, with increasing accuracy and precision						
	Can I record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs						
	Can I use test results to make predictions to set up further comparative and fair tests						
	Can I report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations						
	Can identifying scientific evidence that has been used to support or refute ideas or arguments.						

	Year 6						
Living things and their habitats	Can I describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals						
	Can I give reasons for classifying plants and animals based on specific characteristics.						
Animals including humans	Can I identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood						
	Can I recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function						
	Can I describe the ways in which nutrients and water are transported within animals, including humans						
Evolution	Can I recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago						
	Can I recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents						
	Can I identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.						
Light	Can I recognise that light appears to travel in straight lines						
	Can I 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						
	Can I 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						
	Can I use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them						
Electricity	Can I associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit						
	Can I compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches						
	Can I use recognised symbols when representing a simple circuit in a diagram.						