

Oak Meadow Primary School

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Policy: Science

From tiny acorns mighty oaks grow.

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Signature:	
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Contents

Page

Curriculum Statement	3
Skills Progression	5
Assessment	5
Early Years	6
Cross – Curricular Links	6
SMSC Development	6
Diversity	6
Planning and Resources	7
Subject Essentials	7
Role of the Subject Leader	7
Equal Opportunities	8
Inclusion	8
Role of the Governors	8
Health and Safety	8

Curriculum Statement - Science

Intent

At Oak Meadow Primary School, we believe that a high quality science education provides the foundations for understanding the world through the three key areas of biology, chemistry and physics. We strive to allow our pupils to acquire specific skills and knowledge to enable them to think scientifically, to gain an understanding of scientific processes and also provide them with an understanding of the uses of science for both today and in the future. Through our curriculum provision, we endeavour to embrace a child's natural curiosity about the universe around them, whilst simultaneously promoting a respect for all living organisms and the environment.

At Oak Meadow Primary School, in line with the aims of the National Curriculum, our science teaching offers opportunities for children to –

- Develop scientific knowledge and understanding within the three disciplines of biology, chemistry and physics.
- Develop an understanding of the nature, processes and methods of science through different types of enquiries that enable them to answer scientific questions about the world around them.
- Be equipped with the scientific knowledge required to understand the different uses of science.
- Develop essential scientific enquiry skills to deepen their scientific understanding.
- Use a range of methods to present scientific information, for example ICT, diagrams, graphs, tables etc.
- Develop a respect for the materials and equipment they handle with regard for their own, and other children's safety.
- Develop an enthusiasm and enjoyment of scientific learning and discovery.

Within school, we have designed a creative curriculum that allows us to make cross-curricular links between science and the wider curriculum. Where the science curriculum allows, we have linked our science work to our overarching topics for each term in order to create an engaging science curriculum for all and promote a love of learning within the science subject area. We aspire to ensure that our science curriculum provides children with the confidence and ambition to develop their skills within the subsequent stages of their education and forthcoming life experiences.

Implementation

At Oak Meadow Primary School, within Key Stage One and Key Stage Two, children have weekly science lessons over one afternoon, allowing them the required time to develop their scientific skills and build upon their prior knowledge. Within the Early Years Foundation Stage, science is taught through 'Understanding the World', allowing all pupils to start gaining scientific experiences from the beginning of their school journey. This allows children to consistently experience high quality science lessons, which advance their expertise and understanding throughout the entirety of their primary school education.

Across Years 1-6, Science is taught in explicit units, in line with the National Curriculum. Where feasible, cross-curricular links are made to the year group's topic for each term and staff have created their own medium term plans to match their children's interests and abilities, as well as to incorporate a wide range of investigative activities. At Oak Meadow Primary School, science is also taught discretely throughout other aspects of the curriculum allowing children to access a broader curriculum, with examples of this including biographies about famous scientists in English, as well as sketching and observing plants in Art.

Our science curriculum is designed to provide children with the opportunity to work scientifically and acquire the necessary skills to problem solve and work collaboratively to conduct a range of investigative activities. When conducting investigations, children are encouraged to think like scientists and make predictions using their previous knowledge and experiences to support their theories. Teachers model the use of vocabulary, various scientific equipment and the scientific skills needed in order to embed scientific understanding. To underpin this, scientific vocabulary is enhanced through the introduction of a 'Science Word of the Week.' The word is defined and displayed within the classroom and children are encouraged to incorporate the word of the week into their discussions and independent work.

Throughout the school year, regular events such as Science Week and STEM days are implemented across the school in order to broaden the provision pupils receive to allow them to gain more and apply scientific skills within a new context. These events have previously involved the wider community through the implementation of parent workshops and forming external links with the University of Wolverhampton. Children also have the opportunity to attend a STEM club as an extra-curricular activity and some children have been elected to be a part of the Junior STEM Team, giving pupils a voice within their science education.

To monitor the progress made within science lessons, all teachers are required to assess the units taught in line with the moderation materials provided by the Wolverhampton Authority. Each unit covered within science is summatively assessed to ascertain each individual child's progress and formative assessment is used during and at the end of each individual lesson taught. The science co-ordinator is responsible for monitoring the subject, including the development of medium term and short term planning, as well as the standards within the science books. Throughout the year, regular INSET training is provided in order to disseminate new information, ensuring all staff are updated with relevant changes within science, resulting in teachers delivering the best science provision for all pupils in their care.

Impact

Our science curriculum is carefully planned by our staff, in line with our skills progression and it is tailored to suit the individual needs of each year group. This allows us to ensure that all children are keeping up with the curriculum, therefore making good progress. We measure the impact of our science curriculum through rigorous assessment, keeping track of all children's progress across each scientific unit as they move throughout the school. Our skills progression enables us to ensure that children's scientific understanding is consistently being built upon, as it provides clear, differentiated structure for our science curriculum. At Oak Meadow Primary School, our curriculum is fun and engaging to encourage all learners to gain the foundations they require to better their understanding of the world around them and by implementing a range of investigative activities, children are learning through first hand experiences. Children are able to learn about the career opportunities science encompasses through the links made with the wider community and the opportunities given to them at school.

As a school, we want to ensure that all our children are equipped with the following from our progressive science curriculum –

- A wider variety of skills linked to both scientific knowledge and understanding, as well as scientific enquiry and investigative skills.
- A rich vocabulary that will enable all children to articulate their understanding of taught concepts.
- High aspirations which will see them through to further study and a successful adult life.

Skills Progression

Teachers have identified the key knowledge and skills of each scientific unit and consideration has been given to ensure progression across topics throughout each year group across the school to build upon the knowledge acquired by children throughout their time at Oak Meadow, with a particular focus on providing children with the opportunity to develop their scientific enquiry skills from EYFS to the end of Key Stage 2. See Appendix 1 for KS1 and KS2 Science Skills Progression.

Assessment

Assessment for learning is continuous throughout the planning, teaching and learning cycle. Key scientific knowledge is taught to enable and promote the development of children's scientific skills. Assessment is supported by use of the following strategies:

- Observing children at work, individually, in pairs, in a group and in class during whole class teaching.
- Scientific discussion during investigations that promote children to apply their own thinking and reasoning skills.
- The use of floor books to evidence various stages of investigative work.
- Using differentiated, open-ended questions that require children to explain and unpick their understanding.
- Providing effective feedback, including interactive marking through green pen questions where appropriate, to engage children with their learning and to provide opportunities for self-assessment, consolidation, depth and target setting.
- Book moderation and monitoring of outcomes of work, to evaluate the range and balance of work and to ensure that tasks meet the needs of different learners, with the acquisition of the pre-identified key knowledge of each topic being evidenced through the outcomes.
- Use of the 'what I know already, what I want to know and what I have learnt' (KWL) strategy throughout a unit, alongside specific and measurable WALTs for each lesson with child and teacher review of the agreed success criteria.

At the end of each topic, the acquisition of skills are evidenced by the class teacher on a foundation subject tracker. Target sheets are completed summatively at the end of each scientific topic taught to assess whether each individual pupil is working towards, at or above age related expectations. Throughout the year, progress towards working scientifically is evidenced on a target sheet within the front of each pupil's book. End of term data is also entered to match the assessment requirements for the other core subjects within school. Each child's attainment and progress in science is reported to parents in the end of year report.

Early Years

Early Years explore scientific themes and content through the Understanding of the World strand of the EYFS curriculum. This involves guiding the children to develop sense of their physical world, as well as their community, through opportunities to explore, observe and find out about people, places, technology and the environment. They are assessed according to the Development Matters Attainment targets. Working scientifically is a significant element of the science curriculum and children have the opportunity to develop and apply these skills from the beginning of their school journey in Reception. The requirements for working scientifically within Reception have been included in our school's science skills progression.

Cross – Curricular Links

Science is a subject that touches on many other areas taught in schools, from Mathematics and English to Art and Reading. For example, when presenting data from investigations in bar charts or tables, both scientific and mathematical skills are required. Cross curricular outcomes are also identified prior to teaching and these are evidenced through outcomes of work, as well as being stated explicitly in planning. Each half-term, every year group is required to complete a cross-curricular Guided Reading lesson to promote a love of reading around science and books of a scientific nature are also incorporated into the daily three o'clock read. Teachers also endeavour to link their science lessons to the overarching topic for each term where feasible.

SMSC Development

Spiritual education in Science inspires awe and wonder of the natural world: encompassing the three scientific disciplines of biology, chemistry and physics. Spiritually, Science is using evidence to make sense of the world, helping children to understand their relationship with the world around them. Morally, we teach our children how to use scientific equipment responsibly, whilst considering the impact that different discoveries/inventions have had on the world around them and whether they have made a positive or negative impact. The subject of Science allows pupils to develop socially through the use of collaborative work. Whilst completing investigative activities, our children share ideas, data and results and working together is greatly encouraged at Oak Meadow. Within science lessons, children look at how different discoveries over time have impacted the world around them and they understand that research and discoveries have shaped some beliefs of the modern world. In order to make science relevant to our pupils, teachers discuss modern day scientists from a range of cultures and backgrounds, another way in which SMSC is developed within the subject area of science.

Diversity

Innovations from science have positively touched nearly every aspect of human life. Through science, children understand that scientific developments do not arise of their own accord and that each ideology is brought forward by an individual scientist and that these scientists come from a range of gender, race, religion, culture and backgrounds. Children understand that science has no limitations and that discoveries can come from a wide range of sources if perseverance and hard work are applied rigorously.

Planning and Resources

Science resources are stored centrally in the Science Resource Area and are clearly labelled and organised. The library contains an extensive supply of science topic books to support children's individual research. Children can also use ICT resources. In addition to this, class teachers develop a 'working wall' for each of the scientific topics where books and other artefacts are displayed and are easily accessible for children. Planning is achieved collaboratively with parallel-class teachers and plans are saved electronically for ease of access. Teachers have identified the key knowledge and key vocabulary that is being taught, as well as the skills that are being developed across each topic. These are also explicitly outlined on each topic medium term plan, which makes explicit links to the National Curriculum 2014.

Subject Essentials

Each term children will have completed all objectives linked to their science topic. Work will be differentiated to ensure support and challenge for all pupils. All lessons will be evidenced in individual pupil books or a whole class floor book which may include a variety of recording methods such as written work, QR codes etc. All work will be marked and children will be expected to have spelt key scientific vocabulary accurately. The work produced in science lessons will be expected to be of the same quality as that presented in other core curriculum lessons.

Role of the Subject Leader

The subject leader's responsibilities are:

- To ensure a high profile of science across school.
- To ensure a full range of relevant and effective resources are available to enhance and support learning.
- To model the teaching of science.
- To ensure progression of the key knowledge and skills identified within each unit and that these are integral to the programme of study and secure at the end of each age phase.
- To monitor books and ensure that key knowledge is evidenced in outcomes, alongside and as supported, by SLT.
- To monitor planning, ensuring weekly coverage and to oversee the teaching of science.
- To lead further improvements in and development of the subject as informed by effective subject overview.
- To ensure that the science curriculum has a positive effect on all pupils, including those who are disadvantaged or have low attainment.
- To ensure that the science curriculum takes account of the school's context, promotes children's pride in the local area and provides access to positive role models from the local area to enhance the science curriculum.
- To ensure that approaches are informed by and in line with current identified good practice and pedagogy.
- To attend any relevant training and disseminate information back to staff.
- To monitor and analyse science data at the end of each term.

Equal Opportunities

At Oak Meadow, we are committed to providing a teaching environment which ensures all children are provided with the same learning opportunities regardless of social class, gender, culture, race, special educational need or disability. Teachers use a range of strategies to ensure inclusion and also to maintain a positive ethos where children demonstrate positive attitudes towards others. Support for specific individuals is well considered and planned for, with consideration given to how greater depth and further challenge can be provided for and demonstrated by children who require further challenge.

Inclusion

All pupils are entitled to access the science curriculum at a level appropriate to their needs. To ensure inclusion, teachers use a range of strategies. Independent tasks, as well as teaching, are also well adapted to ensure full accessibility, as well as to provide appropriate challenge to different groups of learners. The school makes full use of additional adults who are deployed effectively to ensure that identified children are able to make progress in each curriculum area, according to their full potential. Through establishing what the children already know and what they wish to find out prior to each topic, teaching takes account of children's own interests to ensure topic relevance to all individual learners and promote pupil engagement, enabling all pupils to be immersed within an exciting scientific curriculum.

Role of the Governors

Governors are responsible for ensuring the effective delivery of the National Curriculum in science. The subject leader will ensure that the Governing Body is kept up to date with the actions and initiatives which are relevant to the subject. Regular reviews of action plans are sent to the governors throughout the year and the governors meet with the subject leads and provide link governor reports to the governing body annually.

Health and Safety

The curriculum will be delivered in a safe and healthy manner and every effort will be taken to identify risks associated with the teaching and learning of Science (such as field trips) and the appropriate control measures will be implemented. Pupils will be educated about health and safety issues as and when the opportunity arises throughout the course of normal teaching. Risk assessments will be submitted for all educational off site visits with a Science link via the Evolve system at least 5 days prior to the visit taking place.

Oak Meadow Skills Progression

Key Stage 2

Subject Area: Science



National Curriculum Objectives	<ul style="list-style-type: none">See Science curriculum			
	EYFS	Year 1 and Year 2	Year 3 and Year 4	Year 5 and Year 6
Working Scientifically	<ul style="list-style-type: none">I can choose the resources I need for chosen activities and say when I do or don't need help.I know about similarities and differences in relation to places, objects, materials and living things.I can observe animals and plants.I can explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.I can select and use technology for particular purposes.I can represent my own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.I can talk about the features of my own immediate environment and how environments may vary from one another.	<ul style="list-style-type: none">I can ask simple questions and recognise that they can be answered in different waysI can observe closely, using simple equipmentI can perform simple testsI can identify and classify a variety of objectsI can use my observations and ideas to suggest answers to questionsI can gather and record data to help me to answer questions	<ul style="list-style-type: none">I can ask relevant questions and use different types of scientific enquiry to answer themI can set up practical enquiries, comparative and fair testsI can make systematic and careful observations, and, where appropriate, take accurate measurements in standard units using a range of equipment, including thermometers and data loggersI can gather, record, classify and present data in a variety of ways to help answer questionsI can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tablesI can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	<ul style="list-style-type: none">I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessaryI can take measurements, using scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriateI can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs line and bar graphsI can use test results to make predictions to set up further comparative and fair testsI can report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentationsI can identify scientific

	<ul style="list-style-type: none"> I can explain why some things occur and talk about changes. 			<ul style="list-style-type: none"> I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can identify differences, similarities or changes related to simple scientific ideas and processes I can use straightforward scientific evidence to answer questions or to support my findings 	evidence that has been used to support or refute ideas or arguments	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals inc Humans	<ul style="list-style-type: none"> I can identify and name a variety of common British animals that are birds, fish, amphibians, reptiles, mammals and invertebrates I can identify and name a variety of common animals that are carnivores, herbivores and omnivores I can describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets) I can identify, name, draw and 	<ul style="list-style-type: none"> I know that animals, including humans, have offspring which grow into adults I can describe the basic needs of animals, including humans, for survival I can describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene 	<ul style="list-style-type: none"> I can identify that animals, including humans, need the right types of nutrition, and they cannot make their own food; they get nutrition from what they eat I can identify that humans and some animals have skeletons and muscles for support, protection and movement 	<ul style="list-style-type: none"> I can describe the simple functions of the basic parts of the digestive system in humans I can identify the different types of teeth in humans and describe their simple functions I can construct and interpret a variety of food chains, identifying producers, predators and prey 	<ul style="list-style-type: none"> I can describe the changes as humans develop from birth to old age in detail 	<ul style="list-style-type: none"> I can identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function I can describe the ways in which nutrients and water are transported within animals, including humans

	label the basic parts of the human body and say which part of the body is associated with each sense					
Living things and their habitats		<ul style="list-style-type: none"> • I can explore and compare the differences between things that are living, dead and things that have never been alive • I can 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 • I can identify and name a variety of plants and animals in their habitats, including micro-habitats • I can 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 		<ul style="list-style-type: none"> • I can recognise that living things can be grouped in a variety of ways • I can explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment • I can recognise that environments can change and that this can sometimes pose dangers to living things 	<ul style="list-style-type: none"> • I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • I can describe the life process of reproduction in some plants and animals 	<ul style="list-style-type: none"> • I can describe how living are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • I can give reasons for classifying plants and animals based on specific characteristics

Plants	<ul style="list-style-type: none"> I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees I can identify and describe the basic structure of a variety of common flowering plants, including trees 	<ul style="list-style-type: none"> I can observe and describe how seeds and bulbs grow into mature plants <ul style="list-style-type: none"> I can find out and describe how plants needs water light and a suitable temperature to grow and stay healthy 	<ul style="list-style-type: none"> I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers I can 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 I can investigate the way in which water is transported within plants I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 			
Seasonal Changes	<ul style="list-style-type: none"> I can observe changes across the four seasons I can observe and describe the weather associated with the seasons and how day length varies 					
Materials	<ul style="list-style-type: none"> I can distinguish between an object and the material from which it is made I can identify and name a variety of everyday materials, including wood, plastic, 	<ul style="list-style-type: none"> I can identify and compare the suitability of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for 			<ul style="list-style-type: none"> I can group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, 	

	<p>glass, metal, water and rock</p> <ul style="list-style-type: none"> • I can describe simple physical properties of a variety of everyday materials • I can compare and group together a variety of everyday materials on the basis of their simple physical properties 	<p>particular uses</p> <ul style="list-style-type: none"> • I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 			<p>conductivity and response to magnets</p> <ul style="list-style-type: none"> • I know that some materials will dissolve in liquid to form a solution and can describe how to recover a substance from a solution • I can use knowledge of solids, liquids and gases to decide how mixtures might be separated including through filtering, sieving and evaporating • I can give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials including metals, woods and plastics • I can demonstrate that dissolving, mixing and changes of state are reversible changes • I can 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 	
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Rocks			<ul style="list-style-type: none"> • I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • I can describe how fossils are formed when things that have lived are trapped within rocks • I can recognise that soils are made from rocks and organic matter 			
Light			<ul style="list-style-type: none"> • I can recognise that I need light in order to see things and that dark is the absence of light • I can notice light is reflected from surfaces • I can recognise that light from the sun can be dangerous and that there are ways to protect my eyes • I can recognise that shadows are formed when the light from a light source is blocked by an opaque object • I can find patterns in the way that the size of shadows change 			<ul style="list-style-type: none"> • I can recognise that light appears to travel in straight lines • I can 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 • 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 • I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Forces and Magnets			<ul style="list-style-type: none"> • I can compare how things move on different surfaces • I can notice that some forces need contact between two objects, but magnetic forces can act at a distance • I can observe how magnets attract or repel each other and attract some materials and not others • I can 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 • I can describe magnets as having two poles • I can predict whether two magnets will attract or repel each other, depending on which poles are facing 		<ul style="list-style-type: none"> • I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • I can identify the effects of air resistance, water resistance and friction that act between moving surfaces • I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect 	
Sound				<ul style="list-style-type: none"> • I can identify how sounds are made, associating some of them with something vibrating • I can recognise that vibrations from sounds travel 		

				<p>through a medium to the ear</p> <ul style="list-style-type: none"> • I can find patterns between the pitch of a sound and features of the object that produced it • I can find patterns between the volume of a sound and the strength of the vibrations that produced it • I can recognise that sounds get fainter as the distance from the sound source increases 		
States of Matter				<ul style="list-style-type: none"> • I can compare and group materials together according to whether they are solids, liquids or gases • I can observe that some materials look different or appear to disappear when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with 		

				temperature		
Earth and Space					<ul style="list-style-type: none"> • I can describe the movement of the Earth and other planets in relation to the sun in the solar system • I can describe the movement of the moon in relation to the Earth • I can describe the sun, Earth and moon as approximately spherical bodies • I can use the idea of Earth's rotation to explain day and night and the apparent movement of the sun across the sky 	
Electricity				<ul style="list-style-type: none"> • I can identify common appliance that run on electricity • I can construct a simple series circuit and name its basic parts including cells, wires, bulbs, switches and buzzers • I can 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 	<ul style="list-style-type: none"> • I can associate the brightness of a lamp or volume of a buzzer with the number and voltage of cells used in the circuit • I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness or buzzers and the on/off position of switches 	

				<p>with a battery</p> <ul style="list-style-type: none">• I can recognise that switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit• I can recognise some common conductors and insulators and associate metals with being good conductors		<ul style="list-style-type: none">• I can use the recognised symbols when representing a simple circuit in a diagram
Evolution and Inheritance						<ul style="list-style-type: none">• I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago• I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents• I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Oak Meadow Skills Progression

Key Stage 2

Subject Area: Science



National Curriculum Objectives	<ul style="list-style-type: none">See Science curriculum			
	EYFS	Year 1 and Year 2	Year 3 and Year 4	Year 5 and Year 6
Working Scientifically	<ul style="list-style-type: none">I can choose the resources I need for chosen activities and say when I do or don't need help.I know about similarities and differences in relation to places, objects, materials and living things.I can observe animals and plants.I can explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.I can select and use technology for particular purposes.I can represent my own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.I can talk about the features of my own immediate environment and how environments may vary from one another.	<ul style="list-style-type: none">I can ask simple questions and recognise that they can be answered in different waysI can observe closely, using simple equipmentI can perform simple testsI can identify and classify a variety of objectsI can use my observations and ideas to suggest answers to questionsI can gather and record data to help me to answer questions	<ul style="list-style-type: none">I can ask relevant questions and use different types of scientific enquiry to answer themI can set up practical enquiries, comparative and fair testsI can make systematic and careful observations, and, where appropriate, take accurate measurements in standard units using a range of equipment, including thermometers and data loggersI can gather, record, classify and present data in a variety of ways to help answer questionsI can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tablesI can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	<ul style="list-style-type: none">I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessaryI can take measurements, using scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriateI can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs line and bar graphsI can use test results to make predictions to set up further comparative and fair testsI can report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentationsI can identify scientific

	<ul style="list-style-type: none">I can explain why some things occur and talk about changes.			<ul style="list-style-type: none">I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusionsI can identify differences, similarities or changes related to simple scientific ideas and processesI can use straightforward scientific evidence to answer questions or to support my findings	evidence that has been used to support or refute ideas or arguments	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals inc Humans	<ul style="list-style-type: none">I can identify and name a variety of common British animals that are birds, fish, amphibians, reptiles, mammals and invertebratesI can identify and name a variety of common animals that are carnivores, herbivores and omnivoresI can describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets)I can identify, name, draw and	<ul style="list-style-type: none">I know that animals, including humans, have offspring which grow into adultsI can describe the basic needs of animals, including humans, for survivalI can describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene	<ul style="list-style-type: none">I can identify that animals, including humans, need the right types of nutrition, and they cannot make their own food; they get nutrition from what they eatI can identify that humans and some animals have skeletons and muscles for support, protection and movement	<ul style="list-style-type: none">I can describe the simple functions of the basic parts of the digestive system in humansI can identify the different types of teeth in humans and describe their simple functionsI can construct and interpret a variety of food chains, identifying producers, predators and prey	<ul style="list-style-type: none">I can describe the changes as humans develop from birth to old age in detail	<ul style="list-style-type: none">I can identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and bloodI can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies functionI can describe the ways in which nutrients and water are transported within animals, including humans

	label the basic parts of the human body and say which part of the body is associated with each sense					
Living things and their habitats		<ul style="list-style-type: none"> • I can explore and compare the differences between things that are living, dead and things that have never been alive • I can 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 • I can identify and name a variety of plants and animals in their habitats, including micro-habitats • I can 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 		<ul style="list-style-type: none"> • I can recognise that living things can be grouped in a variety of ways • I can explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment • I can recognise that environments can change and that this can sometimes pose dangers to living things 	<ul style="list-style-type: none"> • I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • I can describe the life process of reproduction in some plants and animals 	<ul style="list-style-type: none"> • I can describe how living are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • I can give reasons for classifying plants and animals based on specific characteristics

Plants	<ul style="list-style-type: none"> I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees I can identify and describe the basic structure of a variety of common flowering plants, including trees 	<ul style="list-style-type: none"> I can observe and describe how seeds and bulbs grow into mature plants <ul style="list-style-type: none"> I can find out and describe how plants needs water light and a suitable temperature to grow and stay healthy 	<ul style="list-style-type: none"> I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers I can 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 I can investigate the way in which water is transported within plants I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 			
Seasonal Changes	<ul style="list-style-type: none"> I can observe changes across the four seasons I can observe and describe the weather associated with the seasons and how day length varies 					
Materials	<ul style="list-style-type: none"> I can distinguish between an object and the material from which it is made I can identify and name a variety of everyday materials, including wood, plastic, 	<ul style="list-style-type: none"> I can identify and compare the suitability of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for 			<ul style="list-style-type: none"> I can group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, 	

	<p>glass, metal, water and rock</p> <ul style="list-style-type: none"> • I can describe simple physical properties of a variety of everyday materials • I can compare and group together a variety of everyday materials on the basis of their simple physical properties 	<p>particular uses</p> <ul style="list-style-type: none"> • I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 			<p>conductivity and response to magnets</p> <ul style="list-style-type: none"> • I know that some materials will dissolve in liquid to form a solution and can describe how to recover a substance from a solution • I can use knowledge of solids, liquids and gases to decide how mixtures might be separated including through filtering, sieving and evaporating • I can give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials including metals, woods and plastics • I can demonstrate that dissolving, mixing and changes of state are reversible changes • I can 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 	
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Rocks			<ul style="list-style-type: none"> • I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • I can describe how fossils are formed when things that have lived are trapped within rocks • I can recognise that soils are made from rocks and organic matter 			
Light			<ul style="list-style-type: none"> • I can recognise that I need light in order to see things and that dark is the absence of light • I can notice light is reflected from surfaces • I can recognise that light from the sun can be dangerous and that there are ways to protect my eyes • I can recognise that shadows are formed when the light from a light source is blocked by an opaque object • I can find patterns in the way that the size of shadows change 			<ul style="list-style-type: none"> • I can recognise that light appears to travel in straight lines • I can 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 • 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 • I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Forces and Magnets			<ul style="list-style-type: none"> • I can compare how things move on different surfaces • I can notice that some forces need contact between two objects, but magnetic forces can act at a distance • I can observe how magnets attract or repel each other and attract some materials and not others • I can 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 • I can describe magnets as having two poles • I can predict whether two magnets will attract or repel each other, depending on which poles are facing 		<ul style="list-style-type: none"> • I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • I can identify the effects of air resistance, water resistance and friction that act between moving surfaces • I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect 	
Sound				<ul style="list-style-type: none"> • I can identify how sounds are made, associating some of them with something vibrating • I can recognise that vibrations from sounds travel 		

				<p>through a medium to the ear</p> <ul style="list-style-type: none"> • I can find patterns between the pitch of a sound and features of the object that produced it • I can find patterns between the volume of a sound and the strength of the vibrations that produced it • I can recognise that sounds get fainter as the distance from the sound source increases 		
States of Matter				<ul style="list-style-type: none"> • I can compare and group materials together according to whether they are solids, liquids or gases • I can observe that some materials look different or appear to disappear when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with 		

				temperature		
Earth and Space					<ul style="list-style-type: none"> • I can describe the movement of the Earth and other planets in relation to the sun in the solar system • I can describe the movement of the moon in relation to the Earth • I can describe the sun, Earth and moon as approximately spherical bodies • I can use the idea of Earth's rotation to explain day and night and the apparent movement of the sun across the sky 	
Electricity				<ul style="list-style-type: none"> • I can identify common appliance that run on electricity • I can construct a simple series circuit and name its basic parts including cells, wires, bulbs, switches and buzzers • I can 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 	<ul style="list-style-type: none"> • I can associate the brightness of a lamp or volume of a buzzer with the number and voltage of cells used in the circuit • I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness or buzzers and the on/off position of switches 	

				<p>with a battery</p> <ul style="list-style-type: none">• I can recognise that switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit• I can recognise some common conductors and insulators and associate metals with being good conductors		<ul style="list-style-type: none">• I can use the recognised symbols when representing a simple circuit in a diagram
Evolution and Inheritance						<ul style="list-style-type: none">• I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago• I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents• I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution