

Pheasey Park Farm Primary School and Early Years Centre
Policy for Science

Mission Statement

We have the motto "Believe and Achieve" to remind everyone in the school community, pupils, parents, staff and governors that we should always have high expectations of ourselves and each other. If we believe we can do it then we can do it.

Aims

At Pheasey Park Farm Primary School everyone aims to work together to strive for excellence in learning and behaviour. Every child has the right to achieve their potential in a positive, orderly and stimulating environment. We aim to bring learning alive and encourage confident learners who enjoy thinking, active enquiry and participation.

We aim to value children as individuals and support them to achieve success. The curriculum is responsive to changes in society and in education and promotes responsibility to prepare children to become responsible citizens. The school aims to provide the essential building blocks for future learning as well as fostering at each stage vital social, emotional, intellectual and spiritual developments.

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.

Curriculum Drivers

Opportunities - For pupils to be aware of all opportunities available to them and to have high aspirations for their future.

Resilience - For pupils to have the courage to bounce back from any setbacks or challenges and maintain a positive outlook on life.

Diversity - For pupils to appreciate and understand that each individual is unique and to recognise and celebrate our individual differences.

Curriculum Intent

At Pheasey Park Farm, we recognise the importance of Science in every aspect of daily life. We aim to develop our children's natural curiosity, encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence. Children will study a varied curriculum which is carefully planned to build on knowledge year by year and covers the three scientific disciplines of Biology, Chemistry and Physics. It is important to us that our children learn about the scientific knowledge, methods, processes and uses so that they can develop an understanding of the world we live in, today and for the future.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following;

- Science is taught as part of topic sessions which builds on skills as children progress through the school. This strategy enables the achievement of a greater depth of knowledge. (see Appendix 1)
- Through planning, teachers include problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils regularly to identify those children with gaps in learning, so that all pupils keep up.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting and using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Regular events, such as Science Week or theme days, provide pupils with broader provision and the acquisition and application of knowledge and skills.

Early Years Foundation Stage

At Pheasey Park Farm Primary School, Science in EYFS is taught in the new Early Years Foundation Stage as a specific area of learning called Understanding of the World. This area of study involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.

Key Stages 1 and 2

At Pheasey Park Farm, 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.

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.

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.

Organisation and Planning

At Pheasey Park Farm primary school, our curriculum planning is in three phases, (long term, medium term and short term). Our long term planning maps the Science concepts studied in each term, during each key stage. The subject leader devises this plan in conjunction with teaching colleges in each year group who then create medium term plans which give details of each unit of work for each term. The subject leader reviews these plans, ensuring that children have complete coverage of the National Curriculum. Each class teacher creates a short term plan for each lesson, these plans lists specific learning objectives and activities for each lesson. We plan the topics in Science so that they build on prior learning. Children of all abilities have the opportunity to develop their skills and knowledge in each unit and, through planned progression built into the unit of work, we offer them an increasing challenge as they move up the school.

Teaching and Learning

Teaching and Learning in Science at Pheasey Park Farm, aims to ensure that:-

- All lessons have clear learning objectives which are shared and reviewed with the pupils effectively.
- A variety of strategies, including questioning, discussion, concept mapping and marking, are used to assess progress. The information is used to identify what is taught next.
- Activities inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?".
- Activities develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, making comparisons and communicating results and findings.
- Lessons make effective links with other curriculum areas.
- Activities are challenging, motivating and extend pupils' learning.
- Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.
- Ed Tech is used to support teaching and learning in science.

Assessment

Assessment is an integral part of teaching and learning and based upon teachers' judgements of pupil attainment and progress. Teachers will assess children's work by making informal judgements during lessons against Age Related Expectations and the National Curriculum objectives.

On completion of a piece of work, the teacher assesses the work and uses this information to plan future learning. Written or verbal feedback is given to the child to help guide his or her progress, as well as incorporating success criteria into the lesson to assist pupils with understanding how to be successful within a particular session. Pupils are also encouraged to make judgements about how they can improve their own work, using success criteria where

appropriate. Assessment activities should be matched to the pupils' ability, such as differentiation by task or through appropriate support and resource provision.

Special Educational Needs

At Pheasey Park Farm Primary school, all children are encouraged and supported to develop their full potential in Science. Some children may require extra support in the classroom and opportunities for consolidation and reinforcement. Activities are differentiated to meet the needs of all pupils.

Academically More able

At Pheasey Park Farm Primary School, we challenge academically more able children, they will be given open-ended questions and tasks and be encouraged to follow line of thought independently.

Cross-Curricular Links

Science is a subject that touches on many other areas taught in Pheasey Park Farm Primary School, including English, Mathematics and ICT.

These cross curricular links are important because ...

- They help the curriculum to become a 'whole learning experience' with continuity rather than a series of separated lessons on different subjects.
- They can improve teaching by getting both teachers and pupils to work together for common goals.
- They add fun and novelty to lessons, encouraging wider thinking, participation and enthusiasm.
- They promote subjects with 'reality', setting topics into a relevant context for pupils and remove the isolated learning so often associated with single subject teaching.
- It gives opportunities to practise and apply skills using technology in order to locate and present information efficiently and appropriately.

Roles and Responsibilities

At Pheasey Park Farm Primary School, there is a named co-ordinator responsible for co-ordinating the teaching of Science throughout the school.

Their role is to:

- Provide support, advice and resources to members of staff.
- Monitoring the teaching of Science and outcomes for all children, revising policies and supporting staff with planning of Science where necessary.
- Monitor the teaching of Science across the school highlighting the continuity and progression of the areas taught across the school.
- Attend relevant training and support staff through relevant INSET sessions.
- Monitor the use and needs of resources throughout the school.

Inclusion

Effective inclusion involves teaching a lively, interesting, relevant, stimulating Science curriculum that:

- Builds on and is enriched by the differing experiences pupils bring to Science.

- Meets all pupils' learning needs; including boys and girls, pupils with SEN, pupils with disabilities, Pupil Premium children, higher attainers including academically more able children, pupils from all social and cultural backgrounds, children who are in care and those subject to safeguarding, pupils from different ethnic groups and those from diverse linguistic backgrounds.

To overcome any potential barriers to learning in science some pupils may require;

- Support to access texts.
- Help to communicate their ideas, other than writing.
- A non-visual way of accessing sources of information.

Health and Safety

Safe practice as indicated in The Association of Science Education publication, "Be Safe!" must be promoted at all times. Teachers must also take into account the school's Health and Safety policy. Particular attention must be given to avoiding the use of anything that aggravates individual pupils' allergies. Safety issues have been identified in medium-term planning and risk assessments must be completed in weekly planning, when activities are identified that are unusual and beyond the scope of normal safety practice. Teachers actively encourage children to think "pro-actively" about behaving in a safe way at all times.

Equal Opportunities

All children have equal access to the science curriculum and its associated practical activities. The SLT, Class Teachers and TAs at Pheasey Park Farm are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used.

All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This is being monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

Impact

The approach at Pheasey Park Farm Primary School results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science, as a result of our famous people prompts in assemblies. From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving. Children at Pheasey Park Farm Primary School enjoy science and this results in motivated learners with sound scientific understanding.

Monitoring and Review

All teaching staff are involved in the planning and teaching of Science. Monitoring will be carried out by the Head Teacher, Senior Leadership Team and the Subject Leader in the following ways:

- Informal discussion with staff and pupils.
- Collection/monitoring Science planning.
- Monitoring of work through book trawls.
- Classroom observations.

Policy for: Science

Completed by: Mr P. Godwin

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Appendix 1

		Year 1	Year 2	Year 3
Working Scientifically	Planning, Communication and Sources	<ul style="list-style-type: none"> - Draw simple pictures. - Talk about what they see and do. - Use simple charts to communicate findings. - Identify key features. - Ask questions. 	<ul style="list-style-type: none"> - Describe their observations using some scientific vocabulary. - Use a range of simple texts to find information. - Suggest how to find things out. - Identify key features. - Ask questions. 	<ul style="list-style-type: none"> - Use pictures, writing, diagrams and tables as directed by their teacher. - Use simple texts, directed by the teacher, to find information. - Record their observations in written, pictorial and diagrammatic forms. - Select the appropriate format to record their observations.
	Enquiring, Testing, Obtaining and Presenting Evidence	<ul style="list-style-type: none"> - Test ideas suggested to them. - Say what they think will happen. - Use first hand experiences to answer questions. - Begin to compare some living things. 	<ul style="list-style-type: none"> - Use simple equipment provided to aid observation. - Compare objects, living things or events. - Make observations relevant to their task. - Begin to recognise when a test or comparison is unfair. - Use first hand experiences to answer questions. 	<ul style="list-style-type: none"> - Put forward own ideas about how to find the answers to questions. - Recognise the need to collect data to answer questions. - Carry out a fair test with support. - Recognise and explain why it is a fair test. - With help, pupils begin to realise that scientific ideas are based on evidence.
	Observing and Recording	<ul style="list-style-type: none"> - Make observations using appropriate senses. - Record observations. - Communicate observations orally, in drawing, labelling, simple writing and using ICT. 	<ul style="list-style-type: none"> - Respond to questions asked by the teacher. - Ask questions. - Collect and record data (supported by the teacher). - Suggest how they could collect data to answer questions. - Begin to select equipment from a limited range. 	<ul style="list-style-type: none"> - Make relevant observations. - Measure using given equipment. - Select equipment from a limited range.

		Year 1	Year 2	Year 3
Working Scientifically	Considering Evidence and Evaluating	<ul style="list-style-type: none"> - Make simple comparisons and groupings. - Say what has happened. - Say whether what has happened was what they expected. 	<ul style="list-style-type: none"> - Say what has happened. - Say what their observations show and whether it was what they expected. - Begin to draw simple conclusions and explain what they did. - Begin to suggest improvements in their work. 	<ul style="list-style-type: none"> - Begin to offer explanations for what they see and communicate in a scientific way what they have found out. - Begin to identify patterns in recorded measurements. - Suggest improvements in their work evaluate their findings.

		Year 4	Year 5	Year 6
Working Scientifically	Planning, Communication and Sources	<ul style="list-style-type: none"> - Draw simple pictures. - Talk about what they see and do. - Use simple charts to communicate findings. - Identify key features. - Ask questions. 	<ul style="list-style-type: none"> - Describe their observations using some scientific vocabulary. - Use a range of simple texts to find information. - Suggest how to find things out. - Identify key features. - Ask questions. 	<ul style="list-style-type: none"> - Use pictures, writing, diagrams and tables as directed by their teacher. - Use simple texts, directed by the teacher, to find information. - Record their observations in written, pictorial and diagrammatic forms. - Select the appropriate format to record their observations.
	Enquiring, Testing, Obtaining and Presenting Evidence	<ul style="list-style-type: none"> - With help, pupils begin to realise that scientific ideas are based on evidence. - Show in the way they perform their tasks how to vary one factor while keeping others the same. - Decide on an appropriate approach in their own investigations to answer questions. - Describe which factors they are varying and which will remain the same and say why. 	<ul style="list-style-type: none"> - Use previous knowledge and experience combined with experimental evidence to provide scientific explanations. - Recognise the key factors to be considered in carrying out a fair test. 	<ul style="list-style-type: none"> - Describe evidence for a scientific idea. - Use scientific knowledge to identify an approach for an investigation. - Explain how the interpretation leads to new ideas.
	Observing and Recording	<ul style="list-style-type: none"> - Carry out measurement accurately. - Make a series of observations, comparisons and measurements. - Select and use suitable equipment. - Make a series of observations and measurements adequate for the task. 	<ul style="list-style-type: none"> - Make a series of observations, comparisons and measurements with increasing precision. - Select apparatus for a range of tasks. - Plan to use apparatus effectively. - Begin to make repeat observations and measurements systematically. 	<ul style="list-style-type: none"> - Measure quantities with precision using fine – scale divisions. - Select and use information effectively. - Make enough measurements or observations for the required task.

	Year 4	Year 5	Year 6
Considering Evidence and Evaluating	<ul style="list-style-type: none"> - Predict outcomes using previous experience and knowledge and compare with actual results. - Begin to relate their conclusions to scientific knowledge and understanding. - Suggest improvements in their work, giving reasons. 	<ul style="list-style-type: none"> - Make predictions based on their scientific knowledge and understanding. - Draw conclusions that are consistent with the evidence. - Relate evidence to scientific knowledge and understanding. - Offer simple explanations for any differences in their results. - Make practical suggestions about how their working methods could be improved. 	<ul style="list-style-type: none"> - Make reasoned suggestions on how to improve working methods. - Show how interpretation of evidence leads to new ideas. - Explain conclusions, showing understanding of scientific ideas.

	Year 1	Year 2	Year 3
Plants	<ul style="list-style-type: none"> - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. - Identify and describe the basic structure of a variety of common flowering plants, including trees. 	<ul style="list-style-type: none"> - Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> - Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. - Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. - Investigate the way in which water is transported within plants. - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Animals, including Humans	<ul style="list-style-type: none"> - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<ul style="list-style-type: none"> - Notice that animals, including humans, have offspring which grow into adults. - Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> - Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. - Identify that humans and some other animals have skeletons and muscles for support, protection and movement.

	Year 1	Year 2	Year 3
Living Things and their Habitats	Topic not a requirement for this year group.	<ul style="list-style-type: none"> - Explore and compare the difference between things that are living, dead, and things that have never been alive. - Identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other. - Identify and name a variety of plants and animals in their habitats, including micro-habitats. - 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. 	Topic not a requirement for this year group.
Light	Topic not a requirement for this year group.	Topic not a requirement for this year group.	<ul style="list-style-type: none"> - Recognise that they need light in order to see things and that the dark is the absence of light. - Notice that light is reflected from surfaces. - Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. - Recognise that shadows are formed when the light from a light source is blocked by a solid object. - Find patterns in the way that the size of shadows changes.

	Year 1	Year 2	Year 3
Forces and Magnets	Topic not a requirement for this year group.	Topic not a requirement for this year group.	<ul style="list-style-type: none"> - Compare how things move on different surfaces. - Notice that some forces need contact between two objects, but magnetic forces can act at a distance. - Observe how magnets attract or repel each other and attract some materials and not others. - Compare and group together a variety of everyday materials on the basis on whether they are attracted to a magnet, and identify some magnetic materials. - Describe magnets as having two poles. - Predict whether two magnets will attract or repel each other, depending on which poles are facing.
Seasonal Change	<ul style="list-style-type: none"> - Observe changes across the four seasons. - Observe and describe weather associated with the seasons and how day length varies. 	Topic not a requirement for this year group.	Topic not a requirement for this year group.
Materials	<p>Everyday Materials</p> <ul style="list-style-type: none"> - Distinguish between an object and the material from which it is made. - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. - Describe the simple physical properties of a variety of everyday materials. - Compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>Uses of Everyday Materials</p> <ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<p>Rocks</p> <ul style="list-style-type: none"> - Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. - Describe in simple terms how fossils are formed when things that have lived are trapped within rock. - Recognise that soils are made from rocks and organic matter.

	Year 4	Year 5	Year 6
Plants	Topic not a requirement for this year group.	Topic not a requirement for this year group.	Topic not a requirement for this year group.
Animals, including Humans	<ul style="list-style-type: none"> - Describe the simple functions of the basic parts of the digestive system in humans. - Identify the different types of teeth in humans and their simple functions. - Construct and interpret a variety of food chains, identifying producers, predators and prey. 	<ul style="list-style-type: none"> - Describe the changes as humans develop to old age. 	<ul style="list-style-type: none"> - Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. - Describe the ways in which nutrients and water are transported within animals, including humans.
Living Things and their Habitats	<ul style="list-style-type: none"> - Recognise that living things can be grouped in a variety of ways. - Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. - Recognise that environments can change and that this can sometimes pose dangers to living things. 	<ul style="list-style-type: none"> - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. - Describe the life process of reproduction in some plants and animals. 	<ul style="list-style-type: none"> - 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. - Give reasons for classifying plants and animals based on specific characteristics

	Year 4	Year 5	Year 6
Light	Topic not a requirement for this year group.	Topic not a requirement for this year group.	<ul style="list-style-type: none"> - Recognise that light appears to travel in straight lines. - Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. - Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. - Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Force and Magnets	Topic not a requirement for this year group.	Forces only <ul style="list-style-type: none"> - Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. - Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	Topic not a requirement for this year group.
Seasonal Change	Topic not a requirement for this year group.	Topic not a requirement for this year group.	Topic not a requirement for this year group.

	Year 4	Year 5	Year 6
Materials	Topic not a requirement for this year group.	<p>Properties and Changes of Materials</p> <ul style="list-style-type: none"> - 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. - Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. - Demonstrate that dissolving, mixing and changes of state are reversible changes. - 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. 	Topic not a requirement for this year group.
State of Matter	<ul style="list-style-type: none"> - Compare and group materials together, according to whether they are solids, liquids or gases. - 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). - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	Topic not a requirement for this year group.	Topic not a requirement for this year group.

	Year 4	Year 5	Year 6
Sound	<ul style="list-style-type: none"> - Identify how sounds are made, associating some of them with something vibrating. - Recognise that vibrations from sounds travel through a medium to the ear. - Find patterns between the pitch of a sound and features of the object that produced it. - Find patterns between the volume of a sound and the strength of the vibrations that produced it. - Recognise that sounds get fainter as the distance from the sound source increases. 	Topic not a requirement for this year group.	Topic not a requirement for this year group.
Electricity	<ul style="list-style-type: none"> - Identify common appliances that run on electricity. - Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - 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. - Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. - Recognise some common conductors and insulators, and associate metals with being good conductors. 	Topic not a requirement for this year group.	<ul style="list-style-type: none"> - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. - 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. - Use recognised symbols when representing a simple circuit in a diagram.

	Year 4	Year 5	Year 6
Earth and Space	Topic not a requirement for this year group.	<ul style="list-style-type: none"> - Describe the movement of the Earth, and other planets, relative to the Sun. - Describe the movement of the Moon relative to the Earth. - Describe the Sun, Earth and Moon as approximately spherical bodies. - Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	Topic not a requirement for this year group.
Evolution and Inheritance			<ul style="list-style-type: none"> - Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.