



**The Park Federation Academy Trust  
Lake Farm Park Academy**

**Science Policy**

## Approval

<b>Signed by Principal</b>	Harshindar Buttar
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## Section 1: Introduction

It is our aim in Science that children are given opportunities to observe, record and draw conclusions about the world around them. We hope to introduce children to the basic elements of experiments and investigations and help them to become more inquisitive. This policy outlines the teaching and learning of Science at Lake Farm Park Academy. The implementation of the policy is the responsibility of all teaching staff and will be monitored by the Science Co-ordinator and Head Teacher.

## Section 2: Whole School Curriculum Statement

At Lake Farm Park Academy we promise all our children a curriculum which encompasses our four values of:

- Respect
- Aim high
- Telling the truth
- Role model

At the heart of our curriculum we ensure that respect is key; respect for ourselves, community, environment and the wider world. Our children are global citizens who are prepared with the key skills to enter an ever changing society. In a multicultural community our children respect the rights of all stakeholders and we celebrate our diversities. We embed the confidence to learn from our mistakes and challenge one another and ourselves. Our curriculum is engaging, sequential, ambitious and promotes a high level of vocabulary through a range of subjects building on our social, moral and cultural responsibilities as learners. We aspire to give children the tools to have a voice, reflect and be honest. The skills they learn at Lake Farm Park Academy provides them with the cultural capital to succeed in life and be ready for the next stage in their learning.

### 2. a: Intent

The 2014 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 skills** required to understand the **uses and implications** of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this.

The Science Curriculum at Lake Farm Park Academy aims to provide a high quality foundation on which its children begin to develop an understanding of the world around them whilst acquiring the essential aspects of the knowledge, methods, processes, implications and uses of science, today and for the future. We aim to develop our children's scientific enquiry and investigative skills through the exposure and exploration of our rich

outdoor environment and locality. We encourage our children to understand how science can be used to explain phenomena, predict how things will behave, and analyse causes. Science in our school is about embedding procedural knowledge into the long-term memory of our learners. This is achieved through cross-curricular links and progression of topics from Key Stage to Key Stage. This strategy allows for children's prior knowledge to be built upon as well as increase their love for science.

## **2. b: Implementation**

Teachers use a variety of teaching and learning styles in Science lessons. Our principal aim is to develop the children's knowledge, skills and understanding. We do this through a mixture of whole-class teaching and individual/group activities. Teachers encourage children to ask as well as answer scientific questions. Children have opportunities to use a variety of secondary sources of information, where it will enhance learning as well as gaining first hand experiences, for example, the use of books, photographs, graphs, diagrams, models and ICT.

Lake Farm Park also has close links with Royal Holloway University who provide Science activities for the children in KS2. This is done by the University sending their students to the school to teach our pupils specific Science lessons including biodiversity. Regular events, such as Science Week or project days, such as Earth day, allow all pupils to come off-timetable, to provide broader provision, acquisition and application of knowledge and skills. Some of these events will involve families and the wider community.

We recognise the fact that we have children of differing scientific ability in all our classes and so we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways including:

- Setting common tasks that are open-ended and can have a variety of responses
- Setting tasks of increasing difficulties (we do not expect all children to complete all tasks)
- Grouping children by ability and setting different tasks for each group
- Providing a range of challenges with different resources
- Using additional adults to support the work of individual children or small groups
- Incorporating high order questions that apply to scientific thinking to extend the most able children in Science.

All Science units should:

- Have a knowledge organiser which outlines knowledge (including vocabulary) all children must master.
- Have a KWL, glossary and an initial assessment.
- Start with the 'big idea' using science concept cartoon.
- Have evidence in books
- Where possible include a wide range of extra-curricular activities such as trips (RAGC, Science Museum, Lake Farm Country Park etc.) workshops and visits from experts who will enhance the learning experience;
- End with an assessment

## **2.c: Planning**

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of, 'The National Curriculum programmes of study for Science 2014' and, 'Understanding of the World' in the Early Years Foundation Stage.

Our Science planning is topic based as part of our cross curricular approach. The National Curriculum is used as a basis with specific guidance provided by Snap Science, an online teaching source.

Teachers should broadly follow the plans set out in the Snap Science scheme, adapting the activities as needed to ensure that all children are able to achieve the objectives of the National Curriculum.

The class teacher is responsible for planning science lessons. This needs to be done using the science planning format.

Science topics are planned to build upon prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit and we also build progression into the science scheme of work, so that the children are increasingly challenged as they progress through the school.

All Science planning should:

- Involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves.
- Have pre-planned high level questions, opportunities for children to ask their own questions and be encouraged to use their scientific skills and research to discover the answers.
- Show sequence of engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge.
- Build upon the knowledge and skill development of the previous lessons and years.

## **2. d. Impact**

The successful implementation will result 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 community links and connection with national agencies such as the STEM association and Royal Holloway University. They learn from and work with professionals, ensuring that children have access to positive role models within the field of science from the immediate and wider local community. From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving. Children at Lake Farm Park enjoy Science and this results in motivated learners with sound scientific understanding.

The impact and measure of this is to ensure children not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

### **At Lake Farm Park:**

- Children will achieve age related expectations in Science at the end of their cohort year.
- Children will retain knowledge that is pertinent to Science with a real life context.
- Children will be able to question ideas and reflect on knowledge.
- Children will work collaboratively and practically to investigate and experiment.
- Children will be able to explain the process they have taken and be able to reason scientifically.

## **Section 3: Science Non negotiables**

1. **Work will be recorded at least once a fortnight in a variety of ways.** E.g. photos, post-it notes, peer-assessments, videos, posters, graphs, diagrams, writing up experiments, etc.
2. **Differentiation** must be evident in every lesson to help pupils access learning as independently as possible via layered tasks, outcomes, resources, questioning, student groupings, support and responses, including challenge.
3. **If applicable, all adults including LSAs, must be utilised in the lesson** to support all children to understand concepts, vocabulary and work safely and scientifically.
4. **Questioning is effective and challenging** and high quality responses (full sentences) are expected and modelled. It must consolidate, steer, support, challenge, deepen and extend learning for all pupils.
5. All adults and pupils work with an ethos of celebration, reflection and improvement to **correct misconceptions effectively and efficiently.**
6. **Teachers must employ a range of effective strategies and practical activities that promote engagement and participation** with a range of scientific skills being developed.
7. **Subject knowledge must be exemplary, continuously developed and evaluated** over time to create an inspiring and engaging curriculum that promotes learning and curiosity, both within the classroom and beyond.
8. **Opportunities must be provided for pupil discussion as a valuable tool for learning** including **language development skills.** Talk must be meaningful and highly focused on improved achievement.

9. **Planning should exhibit the high expectations of the teacher (including mastery and depth) and show consistency across the year group** as well as provide sufficient challenge and engagement to support rapid progress in all areas of the curriculum.
  
10. **Resources must facilitate high levels of learning** and be fit for purpose. They should model exemplary practice across the curriculum, including spelling and grammar. Text for displays and on Smartboards should be appropriately sized.

#### **Section 4: Cross Curricular Links**

At Lake Farm Park Academy we use Science to promote learning across many areas of the National Curriculum, including: -

##### **English**

Science contributes significantly to the teaching of English at Lake Farm Park by actively promoting the skills of thinking, reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

##### **Mathematics**

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number skills. Through working on investigations, they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions.

##### **Computing**

Children use computing in Science lessons where appropriate. They use it to support their work in Science by learning how to find, select, and analyse information on the internet. Children use computers to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

##### **Personal, Social and Health Education (PSHE)**

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of welfare, healthy eating and exercise. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. Science promotes the concept of positive citizenship.

##### **Spiritual, Moral, Social and Cultural Development**

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of pollution and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can

contribute to the way we manage the Earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

### **Section 5: Inclusion in Science**

We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for 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 levels. Our work in science takes into account the targets set in the children's Education Health and Care Plan (EHCP).

#### **At Lake Farm Park:**

- Teachers are responsible for the teaching and assessment of all children in their class.
- Learners who have more complex or challenging needs should be able to access differentiated activities that still promote scientific skills at an appropriate stage.
- Ensure that SEN children have opportunities to work without direct adult support. If activities are correctly modelled, pitched and resourced, such opportunities will encourage pupils to become more independent and confident individuals.
- When written information is provided it should be accessible to all pupils. This may involve differentiating the reading level, carefully selecting the context used, using a large font size, providing clear and illustrated explanations of key words.
- Consider how information can be presented in forms other than the written word-pictures, recordings, DVDs etc.
- Teachers should be aware of the language processing needs of pupils and be prepared to adjust and support scientific vocabulary and concepts.

### **Section 6: Equality Statement**

We strive to provide a broad and balanced curriculum for all pupils. All lessons ensure that each child feels safe, secure and a part of the lesson. Science lessons include opportunities where the less able are supported and the more able challenged. As far as possible the language of Science is also differentiated to be accessible to any children with EAL. We aim to be more inclusive in the teaching of Science by setting suitable learning challenges, responding to the diverse learning needs of pupils and overcoming potential barriers to learning and assessment for individuals and groups of children.

### **Section 7: Assessment and Marking**

- Assessment must be used continuously throughout each lesson.
- Where applicable, the starter and plenary activity provide an opportunity for the teacher to assess current and future learning and understanding.
- Where applicable, refer to previous learning (considering learning from previous year groups as well) to build on.
- Plenaries and mini-plenaries should clarify and assess learning and explain how this can be used to move learning forward.
- Hot marking/verbal feedback should be used to support, challenge and guide pupils to improve their learning.



- Peer assessment activities using success criteria sheets/checklists enable pupils to positively identify their strengths and areas for development.
- Questioning is effective and challenging and high quality responses (full sentences) are expected and modelled.
- Aim to follow up questions with further questions to promote deeper thinking.
- Science framework should be highlighted at the end of every unit.  
See marking policy

## Section 8: Resources

We have a range of resources to support the teaching of Science across the school and all our resources are kept in the science cupboard. All resources taken from the cupboard must be returned.

A purchase order must be raised, signed by the Science Lead and the Head Teacher before any purchases are made. Failure to do so could result in a refusal for reimbursements.

## Section 9: Science Overview

### The Foundation Stage

At Lake Farm Park we teach science in the Foundation stage as an integral part of the topic work covered during the year. It comes under Understanding the World in the EYFS. Children must be supported in developing the knowledge, skills and understanding that help them to make sense of the world. Their learning must be supported through offering opportunities for them to use a range of tools safely; encounter creatures, people, plants and objects in their natural environments and in real-life situations; undertake practical 'experiments'; and work with a range of materials.

The programmes of study for both Key Stage 1 and 2 are based on THE National Curriculum 2014 and Snap Science:

### Key stage 1

Year 1	Year 2
Working Scientifically	Working Scientifically
Animals, including Humans	Animals, including Humans
Everyday materials	Living things and their habitat
Plants	Uses of everyday materials
Seasonal changes	Plants

### Key stage 2

Year 3	Year 4
working scientifically	working scientifically
Plants	Living things and their habitat

Animals, including animals	Animals, including humans
Rocks	State of matter
Light	sound
Forces and magnets	electricity

<b>Year 5</b>	<b>Year 6</b>
working scientifically	working scientifically
Living things and their habitats	Living things and their habitat
Animals, including animals	Animals, including humans
Properties and changes of materials	Evolution and inheritance
Earth and space	Light
Forces	electricity

### **Key Stage 1**

Pupils should be taught about:

#### **Year 1**

Working Scientifically	<ul style="list-style-type: none"> <li>• asking simple questions and recognising that they can be answered in different ways.</li> <li>• observing closely, using simple equipment.</li> <li>• performing simple tests .</li> <li>• identifying and classifying .</li> <li>• using their observations and ideas to suggest answers to questions .</li> <li>• gathering and recording data to help in answering questions.</li> </ul>
Animals, including Humans	<ul style="list-style-type: none"> <li>• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>• identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> <li>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>
Everyday materials	<ul style="list-style-type: none"> <li>• distinguish between an object and the material from which it is made</li> <li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• describe the simple physical properties of a variety of everyday materials</li> </ul>

	<ul style="list-style-type: none"> <li>compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>
Plants	<ul style="list-style-type: none"> <li>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>
Seasonal changes	<ul style="list-style-type: none"> <li>observe changes across the four seasons</li> <li>observe and describe weather associated with the seasons and how day length varies.</li> </ul>

## Year 2

Working Scientifically	<ul style="list-style-type: none"> <li>asking simple questions and recognising that they can be answered in different ways.</li> <li>observing closely, using simple equipment.</li> <li>performing simple tests .</li> <li>identifying and classifying .</li> <li>using their observations and ideas to suggest answers to questions .</li> <li>gathering and recording data to help in answering questions.</li> </ul>
Animals, including Humans	<ul style="list-style-type: none"> <li>notice that animals, including humans, have offspring which grow into adults</li> <li>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>
Living things and their habitat	<ul style="list-style-type: none"> <li>explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</li> <li>identify and name a variety of plants and animals in their habitats, including microhabitats</li> <li>describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</li> </ul>
Plants	<ul style="list-style-type: none"> <li>observe and describe how seeds and bulbs grow into mature plants</li> <li>find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>
Uses of every day material	<ul style="list-style-type: none"> <li>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>

## Key Stage 2

Pupils should be taught about:

### Year 3

Working Scientifically	<ul style="list-style-type: none"><li>• asking relevant questions and using different types of scientific enquiries to answer them</li><li>• setting up simple practical enquiries, comparative and fair tests</li><li>• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li><li>• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li><li>• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li><li>• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li><li>• identifying differences, similarities or changes related to simple scientific ideas and processes</li><li>• using straightforward scientific evidence to answer questions or to support their findings.</li></ul>
Animals, including Humans	<ul style="list-style-type: none"><li>• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</li><li>• identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li></ul>
Light	<ul style="list-style-type: none"><li>• recognise that they need light in order to see things and that dark is the absence of light</li><li>• notice that light is reflected from surfaces</li><li>• recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li><li>• recognise that shadows are formed when the light from a light source is blocked by an opaque object</li><li>• find patterns in the way that the size of shadows change.</li></ul>
Plants	<ul style="list-style-type: none"><li>• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li><li>• explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li><li>• investigate the way in which water is transported within plants explore the part that flowers play in the life cycle</li></ul>

	of flowering plants, including pollination, seed formation and seed dispersal.
Rocks	<ul style="list-style-type: none"> <li>• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• recognise that soils are made from rocks and organic matter.</li> </ul>
Forces and magnets	<ul style="list-style-type: none"> <li>• compare how things move on different surfaces</li> <li>• notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>• observe how magnets attract or repel each other and attract some materials and not others</li> <li>• compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</li> <li>• describe magnets as having two poles</li> <li>• predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>

#### Year 4

Working Scientifically	<ul style="list-style-type: none"> <li>• asking relevant questions and using different types of scientific enquiries to answer them</li> <li>• setting up simple practical enquiries, comparative and fair tests</li> <li>• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>• using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>
Living things and their habitats	<ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> </ul>

	<ul style="list-style-type: none"> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>• recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul>
Animals, including humans.	<ul style="list-style-type: none"> <li>• describe the simple functions of the basic parts of the digestive system in humans</li> <li>• identify the different types of teeth in humans and their simple functions</li> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>
States of matter	<ul style="list-style-type: none"> <li>• compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</li> <li>• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>
Sound	<ul style="list-style-type: none"> <li>• identify how sounds are made, associating some of them with something vibrating</li> <li>• recognise that vibrations from sounds travel through a medium to the ear</li> <li>• find patterns between the pitch of a sound and features of the object that produced it</li> <li>• find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>• recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>
Electricity	<ul style="list-style-type: none"> <li>• identify common appliances that run on electricity</li> <li>• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>• recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>

### Year 5

Working Scientifically	<ul style="list-style-type: none"> <li>• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> </ul>
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	<ul style="list-style-type: none"> <li>• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>• using test results to make predictions to set up further comparative and fair tests</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Living things and their habitats	<ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• describe the life process of reproduction in some plants and animals.</li> </ul>
Animals, including humans.	<ul style="list-style-type: none"> <li>• describe the changes as humans develop to old age.</li> </ul>
Properties and changes of materials	<ul style="list-style-type: none"> <li>• compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul>
Earth and space	<ul style="list-style-type: none"> <li>• describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>• describe the movement of the Moon relative to the Earth</li> <li>• describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>• use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>
Forces	<ul style="list-style-type: none"> <li>• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> </ul>

	<ul style="list-style-type: none"> <li>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>
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### Year 6

Working Scientifically	<ul style="list-style-type: none"> <li>• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>• using test results to make predictions to set up further comparative and fair tests</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Living things and their habitats	<ul style="list-style-type: none"> <li>• describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals</li> <li>• give reasons for classifying plants and animals based on specific characteristics.</li> </ul>
Animals, including humans.	<ul style="list-style-type: none"> <li>• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>• describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>
Evolution and inheritance	<ul style="list-style-type: none"> <li>• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>• describe the ways in which nutrients and water are transported within animals, including humans</li> </ul>
Light	<ul style="list-style-type: none"> <li>• recognise that light appears to travel in straight lines</li> <li>• use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</li> </ul>



	<ul style="list-style-type: none"> <li>• explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> <li>• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul>
Electricity	<ul style="list-style-type: none"> <li>• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>• use recognised symbols when representing a simple circuit in a diagram</li> </ul>

### **Section 10: Monitoring and review**

It is the responsibility of the Science Subject Leader, the Head Teacher and Governors to monitor the standards of children's work and the quality of teaching in science. The Science Subject Lead is also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. An action plan is written and reviewed annually. The Science Lead helps with the levelling and moderation of work samples to ensure consistency and calls in books and assessment folders for scrutiny and evidence of progress, with feedback being given to staff on a termly basis. We are working with a cluster of schools to share ideas and look at how we moderate our science books.