A Curriculum to Inspire @ Mountfields Lodge

CURRICULUM STATEMENT: Science

Our Curriculum Intent for Science

The 'drivers' around which our curriculum is centred, without any subject preference or bias, are:

EXPLORE PERSEVERE (BE) INDEPENDENT COMMUNICATE

We want our pupils to develop EPIC qualities and become EPIC learners.

E: We want our pupils to have a love of exploring facts, finding information and developing new skills; we want them to be inquisitive and enquiring.

P: We want them not to give up at the first hurdle (or even the second); we want them to know that effort, commitment and hard work can pay dividends; we want them to persevere.

I: We want them to learn how to learn; to learn how to pursue lines of enquiry and interest themselves; we want them to develop independence.

C: We want them to be able to tell others, with confidence and clarity, what they know, what they think, what they imagine...we want them to be good communicators.

Whilst our 'Curriculum to Inspire' is based on the EYFS Curriculum and the National Curriculum, we have been proactive in our school by developing a new curriculum which inspires our children to learn and is relevant to their needs now - and in the future. We have tried to balance the 'have to' aspects alongside the 'got to' and the 'want to' aspects.

The aim of our curriculum is for pupils to have the requisite skills to be successful, independent and motivated learners in readiness for their next stage of education.

The Key Characteristics that we have identified, and that we believe, will make a SCIENTIST are:

- Independently ask questions and explore the world around us.
- Have the confidence in using a wide range of practical skills.
- Become independent in planning and carrying out scientific investigations in a variety of contexts
- Communicate scientific findings, knowledge and understanding in a range of written and verbal ways.
- Persevere in solving challenging problems through use of originality, imagination and innovation.
- Have a passion for Science and appreciate how Science helps us to understand the world and the impact it has on our past, present and future.



We believe Science stimulates children's curiosity as to why things happen in the way they do. We want our pupils to begin to appreciate the way Science will affect their future on a personal, national, and global level.

All pupils at Mountfields Lodge are entitled to be taught the key knowledge and skills in the scientific disciplines to develop understanding of the world around them at an age appropriate level. We aim to harness children's natural excitement and curiosity and inspire them to pursue scientific enquiry.

Teachers aim to nurture a love of the natural world and provide methods of creative enquiry so that children can learn to ask questions, explain and analyse phenomena, make predictions and solve problems. Teachers should provide many opportunities for pupils to respond creatively in the learning.

Staff ensure that all pupils are exposed to high quality teaching and learning experiences, which include allowing children to explore their outdoor environment, and developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aid children's knowledge and understanding of the topic they are studying and of the world around them. We intend to provide all children with a broad and balanced Science curriculum.

Our Curriculum Implementation for SCIENCE

In ensuring high standards of teaching and learning in Science, we implement a curriculum that is progressive throughout the whole school.

At Mountfields Lodge School, we use the National Curriculum Programmes of Study for Science 2014, supplemented by other materials such as PLAN documents from the Association of Science Education (ASE), as the basis for our planning and teaching. Teachers have a clear understanding of previous and subsequent year groups' key knowledge content in order to link learning and build on prior knowledge. Teachers know where a unit of work fits into the progression map for Science across the school – this is essential in ensuring key knowledge and vocabulary is taught and assessed to maintain progression throughout the curriculum. A creative approach to combining key knowledge and skills is often taken through linking Science with other subjects and encouraging independent learning and recording.

Prior attainment is acknowledged and prior learning accessed so that future learning is based on knowledge and understanding that is secure and established.

Our approach to teaching Science in the Early Years Foundation Stage is based upon children exploring similarities and differences in their world around them. The Early Learning Goals which summarise the knowledge, skills and understanding that all children should have gained by the end of EYFS are the bedrock of our planning in Year 1 and beyond. We use guided teaching sessions books to hook children's interest and let them explore and experiment for themselves through both guided adult led group time and free play within our continuous provision. We allow the children to regularly explore within the classroom and the school's wider natural grounds.

Our expectations for Teaching and Learning are:

- A progression map for Science is covered in each key stage (based on the NC Programme of study), which shows a clear progression of:
 - (i) the Scientific disciplines of Biology, Chemistry and Physics
 - (ii) the skills of Working Scientifically.

Attention is given to what pupils have already experienced, and subsequent steps in learning planned. The progression maps also ensure that links can be made within an across areas and key stages to ensure connections are made between teaching and learning.

- Teaching and learning of scientific knowledge and skills are sometimes linked to themes and across the curriculum, where appropriate. At other times, Science is taught discretely, e.g. during Science weeks.
- Teachers should find ways of contextualising Science and helping pupils relate this to real world situations. Pupils should also learn and be inspired by well-known scientists, who have helped to shape the world in which they live.
- Pupils should be encouraged to apply skills independently in order to demonstrate and use scientific thinking. They should be given opportunities to explore their ideas and to answer their own questions through scientific enquiry, including investigations.
- Pupils should be encouraged to record their findings creatively and independently.
- Pupils are taught in mixed ability, and sometimes mixed-age group classes. However, those pupils identified with a higher learning potential should be challenged further and children who find aspects of their learning more difficult should be appropriately supported to experience success.

The Progression Map for SCIENCE is:



Mountfields Lodge School Progression Map for Science – Working Scientifically NB - The National Curriculum statements in italics in these tables indicate that they feature more than once.

Year 1 & 2	Year 3 & 4	Year 5 & 6	
Asking question	s and recognising that they can be answe	red in different ways	
Asking simple questions and recognising that they can be answered in different ways • While exploring the world, the children develop their ability to ask questions (such as what something)s, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. • The children answer questions developed with the teacher often through a scenario. • The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are answered.	Asking relevant questions and using different types of scientific enquiries to answer them • The children consider their prior knowledge when asking questions. The independently use a range of question stems. Where appropriate, they answe these questions. • The children answer questions posed to the teacher. • Given a range of resources, the childre decide for themselves how to gather evidence to answer the question. They recognise when secondary sources ca be used to answer questions that cann be answered through practical work. They identify the type of enquiry that th have chosen to answer their question.	Planning different types of scientific enquiries to answer questions, including recognising and controlling, variables where necessary · Children independently ask scientific questions. This may be stimulated by a r scientific experience or involve asking further questions based on their developed understanding following an enquiry. · Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry bn r recognise how secondary sources can be used to answer questions that cannot be answered through pradical work.	
M Observing closely, using simple equipment Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units.	aking observations and taking measuremen Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • The children make systematic and careful observations. • The yest a range of equipmentfor measuring length, time, temperature and capacity. They use standard units for their measurements.	S Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. During an enquiry, they make decisions e.g. whether they need to: take repeat readings (triesting), increase the sample size (pattern seeking), adjustthe observation period and frequency (observing over time), or check further secondary sources (researching) in order to get accurate data (closer to the true value).	
En	gaging in practical enquiry to answer quest	ons	
Performing simple tests • The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out tests to classify: comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying • Children use their observations and testing to compare objects, materials and living	Setting up simple practical enquiries, comparative and fair tests • The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. • They follow their planto carry out observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • The children selectfrom a range of pradical resources to gather evidence to answer their questions. They carry outfair tests, recognising and controlling variables. They decide what observations or measurements to make overtime and for how long. They look for patterns and relationships using a suitable sample.	

 things, They sort and group these things, identifying their own criteria for sorting, expression of the secondary sources (such as identifications heets) to name living things. They describe the characteristics they used to identify a living thing. 	Explanatory note A comparative test is performed by changing a variable that is qualitative se, g, the type of material, shape of the parachute. This leads to a ranked outcome. A fair test is performed by changing a variable that is quantitative e.g. the thickness of the material or the area of the canopy. This leads to establishing a causative relationship.	
	Recording and presenting evidence	
Gathering and recording data to help in answering questions • Using photographs, videos, drawings, labelied dayrams or in writing. • They record their measurements e.g. using prepared tables, pictograms, taily charts and block graphs. • They classify using simple preparedtables and sorting rings.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • The children somellimes decide how to record and present evidence. They record herio bservation e.g. using photographs, videos, pictures, labeled diagrams or writing. They record their measurements e.g. using tables, faily, charts and bar charts (given lemplates, headings). They record classifications	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • The children decide how to record and present evidence. They record observational e.g. labeled diagrams, observational evinys, labeled diagrams, using tables, Venn diagrams, Carrol diagrams and classification keys.

	 e.g. using tables, Venn diagrams, Carroll diagrams. Children are supported to present the same data in different ways in order to help with answering the question. 	 Children present the same data in different ways in order to help with answering the question.
	Answering questions and concluding	
Using their observations and ideas to suggest answers to questions Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have taken or information they have gainedfrom secondary sources.	Using straightforward scientific evidence to answer questions or to support their findings. • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answes are consistent with the evidence.	 Identifying scientific evidence that has been used to support or refute ideas or arguments Children answertheir own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g., from other groups, secondary sources and their scientific understanding, supports or refutes their answer. They tak about how their scientific ideas change due to new evidence that they have gathered. They tak about how new discoveries change scientific understanding.
Using their observations and ideas to suggest answers to questions • The children recognise biggest and smallest," best and worst" etc. from their data.	Identifying differences, similarities or changes related to simple scientific ideas and processes Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships.	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 • In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify

	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface. • Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.	Using test results to make predictions to set up further comparative and fair tests - Children use the scientfic knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.
х.	Communicating their findings	
	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and written forms such as displays and other presentations They communicate their findings to an audience using relevant scientific language and likustations.

	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions They draw conclusions based on their evidence and current subject knowledge.	results that do not fit the overall pattern; and explain their findings using their subject knowledge.
Eva	aluating and raising further questions and pred	lictions
	 Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. 	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 • They evaluate for example, the choice of method used, the control of variables he precision and accuracy of measurements and the credibility of secondary sources used. • They identify any limitations that reduce the trust they have in their data.

Mountfields Lodge School Progression Map for Science - Biology

National Curriculum statements in red are from other linked topics.



F	Plants
Early learning goal	 Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their pwp, immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.
KS1 (1)	 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.
KS1 (2)	 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.
LKS2	 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.
UKS2	 Describe the life process of reproduction in some plants and animals. (Living things and their habitats)
UKS2	 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. (Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Living things and their habitats) Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Evolution and their habitats)

Animals Including Humans

Early learning goal	 Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.
KS1 (1)	 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.
KS1 (2)	 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.
LK\$2 (1)	 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.
LK\$2 (2)	 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.
UK\$2	Describe the changes as humans develop to old age. (PHSE/RSE)
UKS2	 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

•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain
	why some things occur and talk about changes.
:	Explore and compare the differences 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 for 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 microhabitats. 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.
:	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.
:	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.
•	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. Give reasons for classifying plants and animals based on specific characteristics.
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Evolution and inheritance

Early	٠	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their
learning		own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain
goal		why some things occur and talk about changes.
KS1	٠	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. (Living things and their habitats)
	•	Notice that animals, including humans, have offspring which grow into adults. (Animals, including humans)
LKS2	٠	Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Rocks)
	•	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Plants)
LKS2	•	Recognise that environments can change and that this can sometimes pose dangers to living things. (Living things and their habitats)
UKS2	٠	Describe the life process of reproduction in some plants and animals. (Living things and their habitats)
UKS2	٠	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.



Mountfields Lodge School Progression Map for Science - Chemistry

National Curriculum statements in red are from other linked topics.

Materials ÷ Early Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their learning own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. goal KS1 (1) Distinguish between an object and the material from which it is made. ٠ 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. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard K\$1 (2) . for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. LKS2 Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Rocks) Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Rocks) Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some agnetic materials ces and ma ets' LKS2 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. UKS2 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.

Rocks

Early learning goal	•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.
KS1	•	Distinguish between an object and the material from which it is made. (Everyday materials)
	•	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Everyday materials)
	•	Describe the simple physical properties of a variety of everyday materials. (Everyday materials)
	•	Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Everyday materials)
KS1	•	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard
		for particular uses. (Uses of everyday materials)
LKS2	٠	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.
	٠	Recognise that soils are made from rocks and organic matter.
UK\$2	•	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Evolution and inheritance)

Mountfields Lodge School Progression Map for Science – Physics

National Curriculum statements in red are from other linked topics.

Seasonal Changes

Early	•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their
learning		own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain
goal		why some things occur and talk about changes.
KS1	•	Observe changes across the four seasons.
	•	Observe and describe weather associated with the seasons and how day length varies.
LKS2	•	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Light)
UKS2	•	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Earth and space)

Light

Early	٠	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their
learning		own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain
goal		why, some things occur and talk about changes.
KS1	٠	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
		(Animals, including humans)
	•	Describe the simple physical properties of a variety of everyday materials. (Materials)
LKS2	٠	Recognise that they need light in order to see things and that 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 an opaque object.
	•	Find patterns in the way that the size of shadows change.
UKS2	•	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.

Forces

Early learning	•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain
goal		wby some things occur and talk about changes.
KS1	•	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Uses of everyday materials)
LKS2	•	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 of 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.
UKS2	•	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 triction, that act between moving surfaces.
	•	Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Sound

Early	•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their
learning		own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain
goal		why some things occur and talk about changes.
KS1	•	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Animals, including humans)
LKS2	٠	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.

Electricity

Early	•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their		
learning		own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain		
goal		why some things occur and talk about changes.		
LKS2	•	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.		
UKS2	•	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.		

Earth and Space

Early learning goal	•	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.
KS1	•••	Observe changes across the four seasons. (Seasonal changes) Observe and describe weather associated with the seasons and how day length varies. (Seasonal changes)
UKS2	•••••	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. 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.

The school is well resourced in terms of scientific equipment, kept in an accessible central store.

Events and visits are planned to enrich the Science curriculum across all age groups. This also ensures that children, who may not get these opportunities, have equal access to experiences.

Visits, such as the Key Stage 1 trip to Conkers, allows pupils opportunities to have hands-on experiences of key biological skills and knowledge, to develop their independence as learners and their sense of responsibility as future global citizens.

The whole school gets involved in National Science Week/STEM each year. This inspires children to think innovatively and work collaboratively.

Pupils are often given the opportunity to use scientific skills independently at home through choices in their 3-in-a-row homework.

Mountfields Lodge participates in the local 3M Young Innovators Challenge each year and this provides a group of children with the opportunity to learn and apply STEM knowledge and skills.

Our Curriculum Impact for SCIENCE:

We measure progress in Science through pupil discussions, work sampling, and observation. We measure the success of our curriculum through pupil interview and curriculum review; we ask our pupils how they feel about their learning as their voice is important to us. Pupils have said that they enjoy and are enthusiastic about Science in school. Their work shows a range of evidence of our curriculum coverage for all Science topics. We actively involve pupils in their own learning, by allowing them opportunities to ask their own questions, and to allow specific time for children to read, reflect and respond to marking and feedback where appropriate.

We assess pupils' learning using assessment tasks throughout a unit:

At the beginning to assess the retaining of prior knowledge.

Mid unit 'Focussed Assessment Task,' covering knowledge and one working scientifically objective.

End of unit task.

We assess and record pupils' attainment at the end of a unit using assessment record grids that include the objectives and the learning journey. Teachers use exemplification materials from ASE to support their assessments.

Assessment grid example:



In Early Years Foundation Stage, we assess pupils' ability to ask questions and explore for themselves. We take note of the comments they make, their drawings, writing and interest in why things happen and how things work. We look carefully for the children's ability to make connections with previous learning, stories we have shared and information they have gathered from wider contexts.