

powerfulScience

By the time they leave, pupils will:

- Have a positive attitude to, and interest in, science
- Plan and carry out a range of scientific enquiries that combine detailed observation, research and fair-testing
- Plan different types of scientific investigations, explaining the variables that will remain constant, and the impact this will have on the investigation
- Ask questions and seek answers through collecting, analysing and presenting data
- Make their own decisions about what observations to make, the measurements that will be made, how long to make them for and whether they should be repeated
- Use a wide range of scientific vocabulary and technical terminology accurately and precisely
- Have good scientific knowledge of: seasonal changes; animals, including humans; plants; living things and their habitats; materials; sound, light; electricity; forces; rocks; earth and space
- Children can think like scientists, understanding that makes that distinctive and how they work
- Children know some examples of scientists and can give examples of them and their work

EYFS links

Understanding the World

- Explore the natural world around them
- Describe what they see, hear and feel whilst outside
- Understand the effect of changing seasons on the natural world around them

The Natural World ELG

- Explore the natural world around them, making observations and drawing pictures of animals and plants
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Curriculum Intent – Science at Mill View Primary School

At Mill View Primary School, we believe that learning is at its most powerful when it is challenged, tested, truly known, and when children can do something with it: change themselves, change their community, change the world. Science sits at the very heart of this vision through its insistence on evidence: what do we know, how do we know it, and what might we still find out? Our science curriculum is designed not merely to inform, but to equip, building in pupils the knowledge, vocabulary, and disciplinary habits to question the world around them and the confidence to investigate it for themselves.

We are guided by the principle of Powerful Scientific Knowledge: the understanding that emerges when disciplinary skill meets substantive knowledge. This knowledge is emancipatory: it equips children to evaluate evidence, challenge misconceptions, and take an active, informed role in a world shaped by scientific and technological change. It allows children to ask the unaskable question and test the untested idea. It progresses communities.

	Disciplinary Skills: the skills of a scientist The methods, equipment and enquiry types used to investigate, and how we interpret evidence. At Mill View we use: Working Scientifically skills progression · Key Questions · Enquiry types (observation over time, pattern seeking, identifying and classifying, comparative and fair testing, researching) · Knowledge Organisers Substantive Knowledge: the knowledge of a scientist The factual content, domain-specific vocabulary, concepts and processes across biology, chemistry and physics. At Mill View we use: Key Questions · Curriculum Objectives · Progressive planning of units · Knowledge Organisers including key vocabulary and scientists for each unit
Powerful Scientific Knowledge, combining these two areas combine, they produce something greater than the sum of their parts. This knowledge is emancipatory. It explains and complicates the everyday experience, and is fundamental in developing a critical, evidence-based approach to life. Pupils begin to understand the scientific processes that shape their world and are able to question and investigate it for themselves. It is empowering. It allows children to ask the unaskable question and test the untested idea. It progresses communities. At Mill View we encourage curiosity, precision and critical thinking. We do this through careful, progressive planning of units and purposeful practical enquiry, allowing children the chance to develop, then test, their understanding.	

Our Five Curriculum Commitments

Oracy	Global Challenges	Career & Future Ready Learners	Inclusion	What Makes Our Curriculum Exceptional?
Science is a subject of precise language and reasoned argument. At Mill View, oracy in science means: • Pupils use the accurate scientific vocabulary of each unit (for example evaporation, variable, classify, reversible) as naturally as they use everyday speech. • Structured discussion and prediction precede every enquiry: children articulate what they think will happen and why before they test it. • Talk is used to construct and challenge scientific explanations, not just to report results. • Pupils are taught to explain their reasoning using evidence, not opinion.	Our science curriculum connects local enquiry to global scientific challenges. • Units such as Earth and Space, Evolution and Inheritance, and Materials open out into questions of sustainability, climate and resource use. • We ask: how do scientists use evidence to solve real-world problems? Whose contribution to science has been overlooked? • Pupils consider the global impact of scientific discovery, from vaccines to renewable energy. • Our curriculum meets the 2025 Curriculum Review's call for global perspectives to be woven through, not added on.	Science is one of the most future-facing subjects in the curriculum. • We develop transferable dispositions: curiosity, precision, and resilience in the face of an unexpected result. • Career links are explicit: doctors, engineers, environmental scientists, vets, researchers, data analysts. • Pupils experience the full enquiry cycle: predicting, planning, testing, recording and concluding, mirroring the practice of working scientists. • STEM links are made explicit across units, with both historical and contemporary scientists represented.	Inclusion at Mill View is a design principle, not a retrofit. • The "I can..." structure gives every pupil a clear entry point with scope for depth. • We ensure scientists of diverse backgrounds and genders are represented, not as an afterthought. • Adaptive teaching means every pupil accesses first-hand practical enquiry, with structured support and pre-taught vocabulary where needed. • Everyday contexts and local examples ground abstract scientific concepts in children's lived experience.	What makes Science at Mill View exceptional is the coherence of our vision from EYFS to Year 6. A clear conceptual spine: Working Scientifically skills build year on year alongside substantive knowledge in biology, chemistry and physics. Practical by design: Every unit includes purposeful, hands-on enquiry, not knowledge delivered in isolation. Emancipatory knowledge: We ask children to question evidence and challenge misconceptions, including their own. The disciplinary habit: By Year 6, our pupils think like scientists. This is the entitlement of every child. STEAM Week: Every autumn term, Science takes centre stage during our whole-school STEAM Week, the root of a project-based powerful learning approach in which pupils apply scientific knowledge and Working Scientifically skills to real, open-ended problems alongside technology, engineering, art and maths.

"Science is learning at its most powerful: an idea challenged by a fair test, knowledge tested against evidence, and understanding children can use to change themselves, their community, and their world."

Alignment with the Ofsted Inspection Framework, Science Subject Report and 2025 Curriculum Review

Ofsted / Curriculum Review focus	How Science at Mill View responds
Curriculum coherence: knowledge builds cumulatively	Substantive knowledge (biology, chemistry, physics) and disciplinary knowledge (Working Scientifically) are tracked separately, then combined, so that concepts are returned to, deepened, and tested across key stages, not encountered once and left behind.
Oracy as a curriculum entitlement	Scientific vocabulary is explicitly taught, modelled and rehearsed orally before being used in writing. Pupils predict and reason aloud before every enquiry, justifying their thinking with evidence.
Global perspectives and contemporary relevance	Units connect scientific knowledge to global challenges including climate, sustainability, health and technology, meeting the 2025 Curriculum Review's call for global perspectives to be woven through, not added on.
Adaptive teaching: high expectations for all	Inclusion is a design principle. All pupils, including those with SEND, undertake first-hand practical enquiry. Vocabulary instruction and structured support ensure every pupil can engage with complex scientific ideas.
Assessment that proves knowledge has stuck	Key Assessment Questions, Knowledge Organisers and retrieval of prior learning test whether scientific knowledge is secure and can be applied, not just encountered once.
Disciplinary knowledge and skills	Working Scientifically is taught as a distinct, sequenced body of knowledge – enquiry types, equipment, and how to interpret evidence – rather than assumed to develop automatically through repeated practical work. This responds directly to a key finding of the Ofsted Science subject report, "Finding the Optimum" (2023), and is tracked separately from substantive knowledge with explicit progression from Year 1 to Year 6.
Career and future readiness	Working Scientifically – evidence handling, enquiry design and reasoned argument – is explicitly linked to careers in STEM and to informed, scientifically literate citizenship.

Curriculum End Points - Science

EYFS - Little Wrens

Final Milestone

- I can understand how to look after the environment and living things.

EYFS - Robins

ELG: The Natural World

Explore the natural world around them, making observations and drawing pictures of animals and plants; Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.



Year 1				
Everyday Materials 	Plants 	Animals including Humans 	Living Things and Habitats 	Seasonal Changes 
Children can.... - name a variety of everyday materials - identify and classify materials based on their physical features - carry out a simple test to answer a question about materials	Children can.... - 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,	Children can.... - identify the human body parts and say which of the senses each part uses? - ask simple questions about the human body	Children can.... - identify and classify animals including fish, amphibians, reptiles, birds and mammals - explain what an omnivore, carnivore and herbivore is, with an example of each	Children can.... - identify the seasons - use observations and gathered recordings of the seasons across the year to identify key changes - perform a simple test with equipment to find out what happens to the length of the day?
Year 2				
Everyday Materials 	Animals including Humans 	Living Things and Habitats 	Plants 	
Children can.... - perform simple tests with equipment to make comparisons between materials and their suitability for different uses - test and record how different solids can be changed	Children can.... - identify the basic needs of human and animals and explain why they are important - explain the life cycle of some animals and humans	Children can.... - identify and classify things that are living, dead or never lived - explain why habitats meet the needs of different animals and plants - describe a simple food chain	Children can... - carry out a simple test to find out what plants need to grow and stay healthy? - record my findings to questions in two different ways - observe how plants mature over time and explain what happens	

Year 3				
Forces and Magnets 	Materials – Rocks 	Light and Sound 	Animals including Humans 	Plants 

Children can.... • use scientific language to explain magnetism and how magnets work • predict then investigate which materials are magnetic or not	Children can.... • explain how fossils are formed • compare and group different rocks based on given criteria	Children can.... • use scientific language to explain what light is and why it can be dangerous • answer why shadows change over time by setting up an enquiry, recording results and presenting data	Children can... • explain why nutrition is important • use scientific language to explain the importance of the skeleton	Children can... • identify the life cycle of a plant • test how water is transported within a plant and present my findings • plan and carry out a comparative test to see and conclude what plants need for growth?
Year 4				
Living Things and Habitats 	Animals including Humans 	Materials – States of Matter 	Light and Sound 	Electricity 
Children can.... • ask questions about why environments change and use the answers to draw conclusions • explore and use classification keys to help group, identify and name a variety of living things •	Children can.... • use scientific language to describe the digestive system • identify teeth and explain the differences in their functions • construct and interpret a variety of food chains, identifying producers, predators and prey	Children can.... • systematically observe and group materials by whether they are a solid, liquid or gas • explain the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature after a practical enquiry • report what happens when materials change state through my own observations	Children can... • explain how sounds are made and the role of vibrations • enquire how sounds change with distance and present my findings in different ways • through enquiry, predict and find patterns between the pitch of a sound and features of the object that produced it • observe then explain how patterns between the volume of a sound and the strength of the vibrations that produced it	Children can... • identify common appliances that run on electricity • explain how a series electrical circuits work and create my own • test the role of a switch in an electrical circuit and present my findings • recognise similarities in some common conductors
Year 5				
Earth and Space 	Forces 	Animals including Humans 	Living Things and Habitats 	Materials – Properties and changes 

Children can.... - describe the movement of the earth and other planets relative to the sun - describe the movement of the moon relative to the earth - show how these views have changed over time with scientific discovery - explain the idea of day and night using the earth's rotation - name key scientists in the development of our understanding of space and suggest what their contribution was - record data in tables, charts, scatter, bar and line graphs, labelled diagrams and using this data to make comparisons and draw conclusions	Children can.... - explain the idea of gravity - demonstrate through testing air resistance, water resistance and friction - show how some mechanisms allow a smaller force to have a greater effect	Children can.... - describe changes as humans develop in to old age - make close and detailed observations - report and present findings	Children can... - describe the difference in life cycles between mammals, amphibians, insects and birds - describe the life process of reproduction - name and locate the parts of a plant involved in reproduction	Children can... - compare and group everyday materials based on their properties - use knowledge of solids, liquids and gases to decide how mixtures might be separated - give reasons based on my own fair testing, for the particular uses of materials - describe and demonstrate a reversible and an irreversible change
Year 6				
Light 	Electricity 	Evolution and Inheritance	Living Things and Habitats 	The Circulatory System 
Children can.... - after investigation, can conclude and explain scientific evidence about how light appears to travel - explain, using scientific language, how objects can be seen - investigate and present my findings to why objects have the	Children can.... - after investigation, can I conclude why there are variations in components' functions - use symbols to represent a simple circuit	Children can.... - use scientific evidence to explain how living things have changed over time - identify that offspring are not normally identical to their parents - recognise the variables in the environment that may lead to evolution	Children can... - explain scientific ideas about how living things are classified into groups - give reasons, through scientific evidence, why plants and animals are classified based on specific characteristics	Children can... - identify the main parts of the human circulatory system and report the functions of the heart, blood vessels and blood - explain the effects of diet, exercise, drug and lifestyle on human bodies

Progression in Science from EYFS to Year 6

EYFS - Little Wrens

3	Milestone 1	Milestone 2	Milestone 3	Final Milestone
I notice things that I see in the Natural World 	I can use my senses to explore the Natural world.	I can begin to use new vocabulary to talk about what they see.	- I can talk about living things. - I can show care for living things.	I can understand how to look after the environment and living things.

EYFS - Robins

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
GENERAL THEMES	FRIENDSHIP & ANIMALS	STARS & SPACE	ENVIRONMENT	TRADITIONAL TALES	GROWING	THE SEASIDE
UNDERSTANDING THE WORLD RE / FESTIVALS	Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.					
	- Identify family - Commenting on photos of their family; naming who they can see and of what relation they are to them. - Talk about what they do with their family - Can draw similarities and make comparisons between other families. - Navigate around our classroom and outdoor areas. - Make own investigations of the season of Autumn through Outdoor learning sessions	- Use photos, discuss how we celebrate Christmas - Use world maps to show where some stories, events and festivals are based. - Encounter a range of fictional characters and creatures from stories. - Identify change in living things – Changes in the leaves, weather, seasons, autumn focus	- Listen to stories and place events in chronological order. - Recognise change in seasons - winter focus - Discuss own homes - Make close observation of the natural world, including animals and plants - Comment on what their home is like to draw comparisons - What lives in our school environment? - Use the words now and then, old and new – explore an old suitcase	- Use new vocabulary where appropriate. - Use touch, smell and hearing to explore the natural world through hands-on experiences. - Environments – Identify features of local environment using Google Earth, Google Maps and photos – - Use texts and artefacts and ICT to compare - Explore maps and create own representations	- Identify ways we can care for the natural world around us. - Make comparisons from how they have changed from when they were a baby (past) - Make close observation of the natural world, including animals and plants - Learn the life cycles of chicks and butterflies - Identify change in living things – Changes in the leaves, weather, seasons, Summer focus - Explore growing plants in our kitchen garden	- Make close observation of objects – use the words float, sink, magnetic - Make comparisons between contrasting environments using images, stories, props - Use the words: recycle, recycling, re-use. - What is it like at the <u>seaside</u>?
	Autumn bags	Diwali Christmas	Valentines Day (14th February) Lunar new Year	Shrove Tuesday Holi Palm Sunday Easter Start of Ramadan	Eid (end of April)	
PROGRESSION INTO YEAR 1	I can talk about a practice from a religion. I can talk about my own experiences and can link these to the communities to which I belong. I can ask questions about me, and who I am, showing awe and wonder. I can retell a religious story using prompts and know that it is from a sacred text and is special to some people. I have started to share my opinions and say what is important to myself and to others. I can ask questions about me, and who I am, showing awe and wonder. I can ask puzzling questions about Creation and God. I can recognise some religious symbols and words					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Working Scientifically (Skills)	asking simple questions and recognise that they can be answered in different ways	asking simple questions and recognising that they can be answered in different ways	ask relevant questions use scientific enquiries, practical enquiries, comparative and fair tests Use systematic observations, measurements, equipment – data loggers and thermometers gather, record, classify and present data to answer questions Use scientific language, drawings, keys, charts, tables report on findings draw conclusions, predict, suggest improvements and raise questions. Recognise similarities, differences and changes evidence	ask relevant questions use scientific enquiries conduct practical enquiries, comparative and fair tests make systematic observations, measurements, equipment – data loggers and thermometers gather, record, classify and present data to answer questions use scientific language, drawings, keys, charts, table report on findings draw conclusions, predict, suggest improvements and raise questions Recognise similarities, differences and changes evidence	different scientific enquiries to answer questions recognise and control variables measurements, accuracy and precision, repeat readings record data and results, use diagrams, labels, keys, tables, scatter graphs, bar and line use test results to predict, set up comparative and fair tests report and present finding conclude and explain scientific evidence, ideas and arguments	different scientific enquiries to answer questions recognise and control variables measurements, accuracy and precision, repeat readings record data and results, use diagrams, labels, keys, tables, scatter graphs, bar and line use test results to predict, set up comparative and fair tests report and present findings conclude and explain scientific evidence, ideas and arguments
	observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions.	observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions.				

Knowledge	Seasonal Changes	Living Things and Habitats				
	observe changes across the four seasons ~ observe and describe weather associated with the seasons and how day length varies (Look in summer terms at patterns identified across the year)	Living Things and Habitats 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.		Living Things and Habitats 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.	Living Things and Habitats 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 (Name, locate and describe the functions of the main parts of plants including those involved in reproduction.)	Living Things and Habitats 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.

Key Assessment Questions		Can I identify and classify things that are living, dead or never lived? Can I explain why habitats meet the needs of different animals and plants? Can I describe a simple food chain?		Can I ask questions about why environments change and use the answers to draw conclusions? Can I explore and use classification keys to help group, identify and name a variety of living things?	Can I describe the difference in life cycles between mammals, amphibians, insects and birds? Can I describe the life process of reproduction? Can I name and locate the parts of a plant involved in reproduction?	Can I explain scientific ideas how living things are classified into groups? Can I give reasons, through scientific evidence, why plants and animals are classified based on specific characteristics?
Knowledge	Animals Including Humans					
	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	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.	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.	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.	describe the changes as humans develop to old age (growth, development and puberty)	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.

	parts of the human body and say which part of the body is associated with each sense.					
Key Assessment Questions		Can I identify the basic needs of human and animals and explain why they are important? Can I explain the life cycle of some animals and humans?	Can I explain why nutrition is important? Can I use scientific language to explain the importance of the skeleton?	Can I use scientific language to describe the digestive system? Can I identify teeth and explain the differences in their functions? Can I construct and interpret a variety of food chains, identifying producers, predators and prey?	Can I describe changes as humans develop in to old age? Can I make close and detailed observations? Can I report and present findings?	Can I identify the main parts of the human circulatory system and report the functions of the heart, blood vessels and blood? Can I explain the effects of diet, exercise, drug and lifestyle on human bodies? Can I investigate how nutrients and water are transported in animals and humans?
Knowledge	Materials					
	Everyday Materials 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	Everyday Materials 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,	Rocks 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	States of Matter 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	Properties and changes of materials compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical	

	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.	bending, twisting and stretching.	are made from rocks and organic matter. (Link to geography work – explore rocks and soils in environment)	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. (avoid chemical changes e.g. baking or burning)	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	
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Key Assessment Questions		Can I perform simple tests with equipment to make comparisons between materials and their suitability for different uses? Can I test and record how different solids can be changed?	Can I explain how fossils are formed? Can I compare and group different rocks based on given criteria?	Can I systematically observe and group materials by whether they are a solid, liquid or gas? Can I explain the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature after a practical enquiry? Can I report what happens when materials change state through my own observations?	Can I compare and group everyday materials based on their properties? Can I use knowledge of solids, liquids and gases to decide how mixtures might be separated? Can I give reasons based on my own fair testing, for the particular uses of materials? Can I describe and demonstrate a reversible and an irreversible change?	

Knowledge	Plants					Evolution and Inheritance
	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	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.	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			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

	common flowering plants,		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.			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
Key Assessment Questions		Can I carry out a simple test to find out what plants need to grow and stay healthy? Can I record my findings to question one in two different ways? Can I observe how plants mature over time and explain what happens?	Can I identify the life cycle of a plant? Can I test how water is transported within a plant and present my findings Can I plan and carry out a comparative test to see and conclude what plants need for growth?			Can I use scientific evidence to explain how living things have changed over time? Can I identify that offspring are not normally identical to their parents? Can I recognise the variables in the environment that may lead to evolution?
Knowledge	Light and Sound				Earth and Space	Light
			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	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	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	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

			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 changes	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.	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.	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.
Key Assessment Questions			Can I use scientific language to explain what light is and why it can be dangerous? Can I answer why shadows change over time by setting up an enquiry, recording results and presenting data?	Can I explain how sounds are made and the role of vibrations? Can I enquire how sounds change with distance and present my findings in different ways? Through enquiry can I predict and find patterns between the pitch of a sound and features of the object that produced it? Can I observe then explain how patterns between the volume of a sound and the strength of the	Can I describe the movement of the earth and other planets relative to the sun? Can I describe the movement of the moon relative to the earth? Can I show how these views have changed over time with scientific discovery? Can I explain the idea of day and night using the earth's rotation? Can I name key scientists in the development of our understanding of space	After investigation, can I conclude and explain scientific evidence about how light appears to travel? Can I explain, using scientific language, how objects can be seen? Can I investigate and present my findings to why objects have the same shape as the objects that cast them?

				vibrations that produced it?	and suggest what their contribution was? Can I record data in tables, charts, scatter, bar and line graphs, labelled diagrams and using this data to make comparisons and draw conclusions?	
Knowledge	Forces and Electricity					
			Forces and Magnets 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	Electricity 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	Forces 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. e.g. levers, pulleys and gears	Electricity 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. construct a series circuit, and describe how the changes are

			will attract or repel each other, depending on which poles are facing.	recognise some common conductors and insulators, and associate metals with being good conductors.		made to it circuit may be affected when
Key Assessment Questions			Can I use scientific language to explain magnetism and how magnets work? Can I predict then investigate which materials are magnetic or not?	Can I identify common appliances that run on electricity? Can I explain how a series electrical circuits work and create my own? Can I test the role of a switch in an electrical circuit and present my findings? Can I recognise similarities in some common conductors?	Can I explain the idea of gravity? Can I demonstrate through testing air resistance, water resistance and friction? Can I show how some mechanisms allow a smaller force to have a greater effect?	After investigation, can I conclude and why there are variations in components' functions? Can I use symbols to represent a simple circuit? Can I report and present findings about how changes in a series circuit affect it?