East Midlands Academy Trust
Science Curriculum Overview

Why Teach Science?

We believe that Science will allow pupils to make informed decisions and choices throughout their lives. By fostering and maintaining a curiosity throughout their education, our pupils will be able to:

- Understand how the world around them works
- Adapt to a life in a modern world
- Experience and share the cultural capital that Science provides
- Show resilience when solving problems
- Decipher fact from fiction by learning how to look for reliable sources of information.

Working Scientifically

Our curriculum details the scientific enquiry skills involved in the processes of science, including an understanding that questions are fundamental alongside the design of experiments; reasoning and arguing with scientific evidence and analysing and interpreting data.

- Observing and Measuring
- Asking Questions
- Recording Data
- Making Predictions
- Interpreting and Communicating Results
- Setting up Tests
- Evaluating

Key Vocabulary

'Rocket Words' are identified for each unit. These are displayed in a table so pupils and teachers can make connections and revisit vocabulary from previous years/units.

Science Rocket Words

	Year 1	Year 2	Year 3
Autumn 1	Animals including Humans (About Me)	Living Things and their Habitats	Rocks
	senses- sight, taste, touch, smell, hearing	habitat	metamorphic rock
	organs	desert	igneous rock
	exercise	living	sedimentary rock
	healthy	producer	extinct
	design	root vegetable	weathering
	baby	Food chain	acid rain
	grow	excrete	fossil
	bones	microhabitat	mineral
Autumn 2	Everyday Materials (Exploring)	Animals Including Humans (Growth)	Animals Including Humans (What Makes us)
	flight	birth	skeleton
	structure	growth	tendon
	transparent	reproduction	ligament
	opaque	death	cartilage
	translucent	life cycle	involuntary muscles
	flexible	generation	voluntary muscles
	rigid	child	contract and relax
	oil	adult	vertebrae
Spring 1	Everyday Materials (Uses)	Plants	Forces and Magnets
	magnet	germinate	lodestone
	metal	nutrient	horseshoe magnet

The 8 Big Ideas of the Science Curriculum

Curriculum maps detail the sequencing of substantive knowledge from the disciplines of biology, chemistry and physics to enable pupils to build schemata of important concepts over time through eight 'big ideas'

- Organisms
- Ecosystems
- Genes
- Waves
- Forces
- Electricity and Magnets
- Matter
- Earth

Each unit focuses on one or two of these big ideas. Knowledge relating to each of the big ideas is mapped progressively so that connections can be made to previous learning.

	Reception	Year 1	Year 2	Year 3	Year 4
Ecosystems	Explore the natural world, making observations and drawing pictures of animals and plants. Know some	Identify and name a variety of plants and explore their basic structure Identify, name and explore the growth and care of animals.	Recognise the importance of a healthy lifestyle Understand and observe the life cycle of a plant Understand and identify the habitats of animals and their	Describe the life cycle of a plant, name key organs and what they do.	Construct and interpret food chains and recognise how environments can change, sometimes posing a danger to living things.

Assessment

Pupils' learning of the curriculum is assessed on an ongoing basis to monitor progress and identify the next steps in learning. In lessons, teachers check pupils can understand and remember the key knowledge and working scientifically skills built into the curriculum. Multiple choice quizzes are built into each unit to assess recall and understanding, these act as a diagnostic tool to inform teaching and provide pupils with feedback on their learning.

Scientific Enquiry Approaches used to develop Disciplinary Knowledge

- **Pattern Seeking** — Identify patterns and look for relationships in enquiries where variables are difficult to control.
- **Observation Over Time** — Observing changes that occur over a period of time ranging from minutes to months.
- **Research** — Using secondary sources of information to answer scientific questions.
- **Identifying, Grouping and Classifying** — Making observations to name, sort and organise items.
- **Comparative/Fair Testing** — Changing one variable to see its effect on another, whilst keeping all others the same
- **Problem Solving** — Applying prior scientific knowledge to find answers to problems.

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Substantive Curriculum Content Overview

Forces	*Electricity and Magnets*	*Waves*	*Earth*	*Matter*	*Organisms*	*Ecosystems*	*Genes*

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Animals, Including Humans (About Me) *Organisms*	Living Things and Their Habitats *Organisms* / *Ecosystems*	Rocks *Earth*	States of Matter *Matter*	Properties of Materials *Matter*	Light *Waves*
Autumn 2	Exploring Everyday Materials 1 *Matter*	Animals, Including Humans 1 (Growth) *Genes*	Animals, Including Humans *Organisms*	Animals, Including Humans *Organisms* / *Ecosystems*	Changes of Materials *Matter*	Looking after the Environment *Ecosystems*
Spring 1	Exploring Everyday Materials 2 *Matter*	Plants *Ecosystems*	Forces and Magnets *Electricity and Magnets* / *Forces*	Living Things and Their Habitats (Conservation) *Ecosystems*	Animals, Including Humans *Genes* / *Organisms*	Electricity *Electricity and Magnets*
Spring 2	Plants *Ecosystems*	Uses of Everyday Materials *Matter*	Plants *Ecosystems*	Living Things and Their Habitats *Genes*	Living Things and their habitats *Ecosystems*	Animals, Including Humans *Organisms*
Summer 1	Animals, Including Humans (All About Animals) *Organisms* / *Ecosystems*	Animals, Including Humans 2 (Life Cycles) *Organisms*	Light *Waves*	Sound *Waves*	Earth and Space *Earth*	Evolution and Inheritance *Genes*
Summer 2	Seasonal Changes Earth	Living Things and Their Habitats (Habitats around the World) Ecosystems	Scientific Enquiry Waves / Matter	Electricity Electricity and Magnets	Forces Forces	Living Things and Their Habitats *Genes*

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Mapping the Big Ideas through the science curriculum

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ecosystems	Explore the natural world, making observations and drawing pictures of animals and plants.	Identify and name a variety of plants and explore their basic structure	Recognise the importance of a healthy lifestyle	Describe the life cycle of a plant, name key organs and what they do.	Construct and interpret food chains and recognise how environments can change, sometimes posing a danger to living things.		
		Identify, name and explore the growth and care of animals.	Understand and observe the life cycle of a plant				
			Understand and identify the habitats of animals and their				
Organisms	Know some similarities and differences between the natural world and contrasting environments, drawing on personal experiences and what has been read in class.	Identify, and understand the common structure of animals, including humans, and those associated with each sense.	Explore things that are living, dead and that never have been alive	Understand the structure of animals, including humans and their function	Describe the functions of the digestive system.		Understand the human circulatory system, recognise the impact of diet, exercise, and lifestyle on the human body, and describe how nutrients and water are transported within animals, including humans.
					Identify the different types of teeth and their functions.		
Genetics			Understand how humans and animals have offspring and how animals, including humans, survive		Recognise that living things can be grouped in a variety of different ways and using classification keys.	Describe the Life cycles of animals, including humans and the process of reproduction in plants and animals.	Recognise that living things have changed over time, produce offspring, and are adapted to their environments.
							Describe how living things are classified based on common characteristics.
Forces	Explore and talk about different forces personally experienced.		Compare how things move on different surfaces and notice some forces need contact between two objects but magnetic forces can act at a distance.		Explore gravity and air resistance, understand water resistance and friction, and investigate mechanisms (levers, pulleys and gears)		
Waves			Understand light, darkness, shadows, and that light from the sun can be dangerous.		Identify how sounds are made, how vibrations from sound travel, understand volume and pitch and how these can be altered.		Investigate how light travels and objects are seen.
Electricity and Magnets			Observe how magnets attract or repel and identify magnetic materials.		Construct circuits, identify appliances that use electricity, recognise conductors and insulators and the role of a switch in a circuit		Use recognised circuit symbols, compare how components function and understand the effect the voltage of cells will have on a component.
Earth	Understand some important processes and changes in the natural world, including the seasons and changing states of matter.	Observe and describe changes in the seasons, weather associated with seasons, night and day length.		Compare and group different types of rocks based on their properties, describe how fossils are formed and recognise how soils are formed.		Describe the movement of planets and the moon relative to the earth and how they are approximate spherical bodies.	
						Explain day/night and the apparent movement of the sun across the sky.	
Matter		Distinguish and identify materials, describe properties, and compare and group.	Identify and compare suitability, explore using forces to change shape		Compare and group solids, liquids and gases, observe that some materials change state. Identify evaporation and condensation and the part they play in the water cycle	Compare and group everyday materials and understand the uses of materials based on their properties.	
						Explore natural resources and how useful substances can be extracted from them.	

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Science Curriculum Map – Term by Term

Understanding the World

People, Culture and Communities | Past and Present | The Natural World | Technology

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.

		Autumn 1	Spring 1	Summer 1
Key Knowledge and Skills	People, Culture and Communities	- Explore and recognise that people have different beliefs and celebrate special times in different ways (experience of relevant festivals and celebrations) making links to the children's own experiences linking to below - Discuss members of the immediate family and community. How are we the same and different? - Discuss similarities and differences between people and the lives they live (jobs/houses/appearance/family etc) - Name and describe people who are familiar to us - Comment on images of familiar situations in the past - Explore and describe the immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. - Create graphical representations, drawings and maps based on own life, immediate environment and experiences	- Explore and recognise that people have different beliefs and celebrate special times in different ways (experience of relevant festivals and celebrations) gaining an increased understanding that we all celebrate different events linking to below - Explore, discuss and recognise similarities, differences between themselves and others and among families, communities and traditions. - Understand that some places are special to members of their community - Compare and contrast characters from stories, including figures from the past - Explore and describe the school and local environment using knowledge from observation, discussion, stories, non-fiction texts and maps. - Create graphical representations, drawings and maps based on the school and areas of the local community	- Explore, discuss and recognise that people have different beliefs and celebrate special times in different ways (experience of relevant festivals and celebrations) making connections between our own experiences and those of other's people linking to below - Recognise and discuss some similarities and differences between different religious and cultural communities in this country, drawing on own experiences and reading - Explore, discuss and explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and – when appropriate – maps.
	Past and Present	- Discuss about past and present events in own life and the lives of their family - Discuss the lives of people around them and their roles in society	- Recognise some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class	- Understand the past through settings, characters and events encountered in books read in class and storytelling - Discuss and encourage children to understand what is the past, present and future in simple terms
	The Natural World	- Record patterns in weather and explore features of Autumn/Winter - Explore and discuss features of materials and states of matter - Explore a range of objects and materials in the immediate environment and from nature and recognise and discuss their features - Discuss and explain some of the things they have observed such as plants, animals, natural and found objects - Play with small world reconstructions, building on first-hand experiences, e.g. visiting farms, garages, train tracks, walking by river or lake - Discuss and learn to show care and concern for living things and the environment	- Record patterns in weather and explore features of Winter/Spring - Explore changes in states of matter through cooking and materials (e.g. paint, clay, ice) - Explore the natural world around them, making observations and drawing pictures of animals and plants - Experience panting and growing of bulbs and seeds - Explore and recognise growth, decay and changes over time	- Record patterns in weather and explore features of Spring/Summer and compare over time - Discuss and explain changes in states of matter - 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. - Develop an understanding of the effect their behaviour can have on the environment
	Technology	- Explore and use a range of different basic technology - Know how to operate simple equipment, e.g. uses a remote control, can navigate touch-capable technology with support - Explore making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images	- Explore and play with technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets - Play with a range of materials to learn cause and effect, e.g. makes a string puppet using dowels and string to suspend the puppet - Explore and discuss why things happen and how things work - Model the correct use of technology including care for equipment, ipads, cameras, computer keyboards and mice.	- Use digital devices and the internet to retrieve and record information relevant to learning

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Science Curriculum Map – EYFS into Key Stage 1

Science Big Ideas	Earth	Matter	Organisms	Ecosystems	Genes

EYFS

Early Learning Goal: The Natural World
Children at the expected level of development will:
- 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.

Reception Understanding the World Milestones
Milestone 1
- Notices detailed features of objects in their environment
- Can talk about some of the things they have observed such as plants, animals, natural and found objects
- Enjoys playing with small world reconstructions, building on first-hand experiences, e.g. visiting farms, garages, train tracks, walking by river or lake

Milestone 2
- Shows care and concern for living things and the e**nvironment**

Milestone 3
- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world
- Developing an understanding of growth, decay and changes over time

Milestone 4
- 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.
- Begin to understand the effect their behaviour can have on the environment

Typical learning experiences include:

Everyday materials
- Exploring a variety of materials and their characteristics.
- Joining materials together
- Investigating properties – experimenting with floating and sinking, magnetic properties, strength, natural vs man made.
- Investigating effectiveness of materials e.g making a paper plane made from different materials like a paper towel, or card.
- Recycling and reusing materials. Junk modelling areas as well as explicit teaching.

Plants
- Categorising different types.
- Naming common plants and different parts e.g petals, stem, leaves, roots.
- Exploring natural environment.
- Growing plants eg cress, beans, potatoes, sunflowers.
- Caring for plants.

Animals including humans
- Taking care of our bodies, teeth, body, healthy food, sun safety, enough sleep etc. Being able to discuss how to keep healthy.
- Identifying and naming and grouping different animals. Linking to habitats and environments.

Seasonal Changes
- Observing changes in the environment eg keeping a year long record, providing context for seasonal changes.
- Observe changes in weather. Be able to name different types of weather e.g fog.
- Discussions about why we wear types of clothing at different types of year.

	Year 1	Year 2
Autumn 1	**Animals Including Humans (About Me)** • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	**Living Things and Their Habitats** • Explore and compare the differences between things that are living, dead, and things that have never been alive. • 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.
Autumn	**Everyday Materials (Exploring and Uses)** • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • Distinguish between an object and the material from which it is made. • Compare and group together a variety of everyday materials on the basis of their simple physical properties. • Describe the simple physical properties of a variety of everyday • materials.	**Animals Including Humans 1 (Growth)** • 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.
Spring 1		**Plants** • 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. • Understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants.
Spring 2	**Plants** • Become familiar with common names of flowers and pant structures including seeds. • Identify and describe the basic structure of a variety of common flowering plants, including trees. • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Understand how plants change over time. • Observe the growth of planted flowers and keep records of how plants change over time.	**Uses of 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, bending, twisting and stretching.
Summer 1	**Animals Including Humans (About Animals)** • 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)	**Animals Including Humans 2 (Life Cycles)** • Notice that animals, including humans, have offspring which grow into adults.
Summer 2	**Seasonal Changes** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	**Living Things and Their Habitats (Habitats Around the World)** • 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.

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Science National Curriculum Coverage – Term by Term

Science Big Ideas	Forces	Electricity and Magnets	Waves	Earth	Matter	Organisms	Ecosystems	Genes

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	**Animals Including Humans (About Me)** • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	**Living Things and Their Habitats** • Explore and compare the differences between things that are living, dead, and things that have never been alive. • 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.	**Rocks** • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • Explore how and why rocks might have changed over time. • Describe in simple terms how fossils are formed when things that have lived are trapped within rock. • Recognise that soils are made from rocks and organic matter.	**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 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.	**Properties of Materials** • Compare and group together xd uses of everyday materials, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • Compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. • 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.	**Light** • 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.
Autumn 2	**Everyday Materials (Exploring and Uses)** • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • Distinguish between an object and the material from which it is made. • Compare and group together a variety of everyday materials on the basis of their simple physical properties. • Describe the simple physical properties of a variety of everyday • materials.	**Animals Including Humans 1 (Growth)** • 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.	**Animals Including Humans** • 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.	**Animals Including Humans** • 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.	**Changes of Materials** • Describe how to recover a substance from a solution. • 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.	**Looking After the Environment** • To know that climate change refers to the long term changes in global or regional climate patterns. • Understand what recycling is • Understand what COP is and what they want to do • Comparing trends in data can help scientist understand the implications of climate change and the future.
Spring 1		**Plants** • 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. • Understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants.	**Forces and Magnets** • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • Compare how things move on different surfaces. • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing • 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	**Living Things and Their Habitats (Conservation)** • Recognise that environments can change and that this can sometimes pose dangers to living things.	**Animals Including Humans (the Human Life Cycle)** • Describe the changes as humans develop to old age.	**Electricity** • Use recognised symbols when representing a simple circuit in a diagram. • 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.
Spring 2	**Plants** • Become familiar with common names of flowers and pant structures including seeds. • Identify and describe the basic structure of a variety of common flowering plants, including trees. • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Understand how plants change over time. • Observe the growth of planted flowers and keep records of how plants change over time.	**Uses of 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, bending, twisting and stretching.	**Plants** • 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. • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • 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	**Living Things and Their 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.	**Living Things and Their Habitats** • Describe the life process of reproduction in some plants and animals. • Describe the life process of reproduction in some plants and animals. • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	**Animals Including Humans (The Heart and Health)** • 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.
Summer 1	**Animals Including Humans (About Animals)** • 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)	**Animals Including Humans 2 (Life Cycles)** • Notice that animals, including humans, have offspring which grow into adults.	**Light** • Recognise that they need light in order to see things and that dark is the absence of light. • Recognise that light from the sun can be dangerous and that there are ways to stay safe. • Notice that light is reflected from surfaces. • 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. • Identify the difference between light sources and non light sources.	**Sound** • 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 volume of a sound and the strength of the vibrations that produced it. • Find patterns between the pitch of a sound and features of the object that produced it. • Recognise that sounds get fainter as the distance from the sound source increases.	**Earth and Space** • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system • Describe the Moon's motion relative to 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.	**Evolution and Inheritance** • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. • 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.
Summer 2	**Seasonal Changes** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	**Living Things and Their Habitats (Habitats Around the World)** • 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.	**Scientific Enquiry** • Ask relevant questions and use different scientific skills to find the answers. • Set up simple practical enquiries and take accurate measurements. • Gather, record and present data. • Report on findings and draw conclusions.	**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 some common conductors and insulators, and associate metals with being good conductors. • 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.	**Living Things and Their 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.

Every child deserves to be the best they can be

East Midlands Academy Trust
Science Curriculum Map – Biology Progression

Science Big Ideas	Forces	Electricity and Magnets	Waves	Earth	Matter	Organisms	Ecosystems	Genes

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biology - Knowledge and Enquiry Questions	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 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.	• Construct and interpret a variety of food chains, identifying producers, predators and prey.	• Describe the changes as humans develop to old age.	• 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.
		• 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.	• 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 simple functions of the basic parts of the digestive system in humans. • Identify the different types of teeth in humans and their simple functions.		
	Plants	• 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.	• 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.	• 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. • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • 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			
	Living Things and Their		• 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.	• 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.
			• Explore and compare the differences between things that are living, dead, and things that have never been alive.		• Recognise that environments can change and that this can sometimes pose dangers to living things.		
	Evolution and inheritance						• 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.

Every child deserves to be the best they can be

East Midlands Academy Trust
Science Curriculum Map – Chemistry Progression

Science Big Ideas	Forces	Electricity and Magnets	Waves	Earth	Matter	Organisms	Ecosystems	Genes

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Chemistry - Knowledge and Enquiry Questions	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. • 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 for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.				
	Rocks			• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • Explore how and why rocks might have changed over time. • Describe in simple terms how fossils are formed when things that have lived are trapped within rock. • Recognise that soils are made from rocks and organic matter.			
	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 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.		
	Properties and Changes of					• 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.	

East Midlands Academy Trust
Science Curriculum Map – Physics Progression

Science Big Ideas	Forces	Electricity and Magnets	Waves	Earth	Matter	Organisms	Ecosystems	Genes

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Physics - Knowledge and Enquiry Questions	Seasonal Changes	• Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.					
	Light			• Recognise that they need light in order to see things and that dark is the absence of light. • Recognise that light from the sun can be dangerous and that there are ways to stay safe. • Notice that light is reflected from surfaces. • 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. • Identify the difference between light sources and non light sources.		• 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 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 will attract or repel each other, depending on which poles are facing.		• 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.	
	Sound				• 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				• 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.		• 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 science					• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system • Describe the Moon's motion relative to 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.	

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East Midlands Academy Trust
Science Curriculum Map – Disciplinary Knowledge

Working Scientifically – Progression of Vocabulary			
EYFS and Year 1	**Year 2**	**Lower Key Stage 2**	**Upper Key Stage 2**
Questions	Pictogram	Variables	Independent variable
Answers	Tally chart	Control variable	Dependent variable
Equipment	Block diagram	Types of scientific enquiry	Accuracy
Gather	Venn diagram	Identify	Precision
Measure	Table Chart	Classify	Degree of trust
Record	Order	Order/rank	Classification keys
Results	Observe changes over time	Comparative tests	Scatter graphs
Sort	Notice patterns	Fair tests	Line graphs
Group	Link	Careful/systematic	Causal relationship
Test	Secondary sources	Accurate	Opinion/fact
Explore	Hand lenses	Observations	
Observe	Stopwatch	Evidence	
Compare		Present	
Describe Similar/similarities		Data/evidence/results	
Different/differences		Keys	
Egg timers		Bar charts	
Ruler		Conclusions	
Tape measure		Prediction	
Metre stick		Support/not support/ refute	
Beaker		Thermometers	
Pipette		Data loggers	
syringe		Magnifying glass	
		Microscope	
		Increase	
		Decrease	
		Appearance	

East Midlands Academy Trust
Science Curriculum Map – Disciplinary Knowledge

These 'working scientifically' statements specify the understanding of the nature, processes and methods of science for each year group. They are to be embedded within the content of biology, chemistry and physics through scientific enquiry to enable pupils to answer relevant scientific questions through a variety of approaches.

Asking Questions	Making Predictions	Setting up Tests	Observing and Measuring	Recording Data	Interpreting and Communicating Results	Evaluating

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Asking and Answering Scientific Questions	Ask and answer a range of questions.	Explore the world around them and use everyday language/begin to use simple scientific words to ask or answer a scientific question.	Suggest ideas, ask simple questions and know that they can be answered/investigated in different ways including simple secondary sources, such as books and video clips.	Use ideas to pose questions, independently, about the world around them.	Suggest relevant questions and know that they could be answered in a variety of ways, including using secondary sources such as ICT. Answer questions using straight forward scientific evidence.	Raise different types of scientific questions, and hypotheses.	Pose/select the most appropriate line of enquiry to investigate scientific questions.
Making Predictions	Use future tense to talk about what is going to happen.	Begin to say what might happen in an investigation.	Begin to make predictions using relevant scientific vocabulary.	Make predictions and begin to give a reason using relevant scientific vocabulary.	Make predictions and give a reason using scientific vocabulary.	Make predictions and give a reason using scientific vocabulary.	Make predictions and give a reason using scientific vocabulary. Base predictions on findings from previous experience/ investigations.
Setting up Tests	Experiment with cause and effect (e.g., towers falling down, cars down a ramp)	Experience different types of scientific enquiry, including practical activities. Follow instructions to complete a simple test individually or in a group.	Begin to recognise different ways in which they might answer scientific questions. Do things in the correct order when performing a simple test and begin to recognise when something is unfair.	Discuss enquiry methods and describe a fair test.	Make decisions about different enquiries, including recognising when a fair test is necessary and begin to identify variables.	Plan a range of science enquiries, including comparative and fair tests.	Select and plan the most suitable line of enquiry, explaining which variables need to be controlled and why, in a variety of comparative and fair tests.
Making Observations	Offer explanations for why things might happen. Notice patterns.	Observe objects, materials and living things and describe what they see.	Observe something closely and describe changes over time.	Make decisions about what to observe during an investigation.	Make systematic and careful observations, deciding what to observe and how long for/how many times.	Plan and carry out comparative and fair tests, making systematic and careful observations.	Make their own decisions about which observations to make, using test results and observations to make predictions or set up further comparative or fair tests.
Equipment and Measurements	Use simple equipment to compare. Use drawing to represent ideas.	Use simple, non-standard equipment and measurements in a practical task.	Use simple equipment, such as hand lenses or egg timers to take measurements, make observations and carry out simple tests.	Make accurate measurements using standard units.	Make decisions about what type of equipment should be used. Take accurate measurements using standard units and a range of equipment, including thermometers and data loggers.	Take measurements using a range of scientific equipment with increasing accuracy and precision.	Choose the most appropriate equipment in order to take measurements, explaining how to use it accurately. Decide how long to take measurements for, checking results with additional readings.
Identifying and Classifying	Sort some of the things they have observed such as plants, animals, natural and found objects	Sort and group objects, materials and living things, with help, according to simple observational features.	Decide, with help, how to group materials, living things and objects, noticing changes over time and beginning to see patterns.	Talk about criteria for grouping, sorting and categorising, beginning to see patterns and relationships.	Identify similarities/differences/changes when talking about scientific processes. Use and begin to create simple keys.	Use and develop keys to identify, classify and describe living things and materials.	Identify and explain patterns seen in the natural environment.
Recording Data	Record patterns in weather. Use past tense to talk about things that have happened.	Begin to record simple data using simple measurements and equipment.	Gather data, selecting the appropriate equipment, and record their findings in a range of ways, using simple scientific vocabulary.	Record their findings using scientific language and diagrams.	Choose appropriate ways to record and present information, findings and conclusions for different audiences (e.g., displays, oral or written explanations).	Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs and models.	Choose the most effective approach to record and report results, linking to mathematical knowledge.
Interpreting and Communicating Results	Talk about similarities and differences between the natural world around them and contrasting environments.	Talk about their findings and explain what they have found out. Explain, with help, what they think they have found out.	Talk about their findings and use simple scientific language to explain what they have found out.	Present findings in note form, writing frames, diagrams, tables and charts. Draw, with help, a simple conclusion based on evidence from an enquiry or observation.	Use recorded data to make predictions, pose new questions and suggest improvements for further enquiries. Use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations.	Use a simple mode of communication to justify their conclusions on a hypothesis. Begin to recognise how scientific ideas change over time.	Identify validity of conclusion and required Improvement to methodology. Discuss how scientific ideas develop over time.
Analysing Data Evaluating and raising further questions and predictions.	Understand some important processes and changes in the natural world around them.	Use every day or simple scientific language to ask and/or answer a question on given data.	Identify simple patterns and/or relationships using simple comparative language. Use their observations and ideas to suggest answers to questions.	Gather, record and use data in a variety of ways. Identify new questions arising from the data.	Identify, with help, changes, patterns, similarities and differences in data to help form conclusions. Use scientific evidence to support their findings. Make predictions for new values within or beyond the data they have collected and find ways to improve what they have already done.	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas.	Identify and explain causal relationships in data and identify evidence that supports or refutes their findings, selecting fact from opinion.

East Midlands Academy Trust
Science Curriculum Map – Disciplinary Language

Asking Questions	Making Predictions	Setting up Tests	Observing and Measuring	Recording Data	Interpreting and Communicating Results	Evaluating

	Making Predictions	Observing and Measuring Interpreting and Communicating Results	Observing and Measuring Interpreting and Communicating Results	Asking Questions Making Predictions Evaluating	Evaluating
	The Language of Prediction - Predicting	**The Language of Description –Describing**	**The Language of Comparison –Comparing and contrasting**	**The Language of Hypothesis – a suggestion that tries to explain something, based on evidence**	**The Language of Evaluation –Evaluating**
EYFS	I think it will…… *'What do you think will happen?'* It will…… The……will…… The……is going to…… This will……because…… *What do you think will happen next?* *What will happen if……*	It is big / small (size) It is (shape name) It is a (shape name) It is soft / hard or hot / cold (texture / properties) It feels like…… It looks like…… It tastes like…… It sounds like…… It smells like…… because…… It is the same because……It is different because…… *As above, use* This ….. looks like …… etc	It is the same because… It looks the same because… It feels the same because… It tastes the same because… It sounds the same because… It is different / They are different because… It is not the same. This is……and that is……	*How do you know e.g. 'The porridge is hot'?* It is……because…… I think……because…… It will……because…… The……is……because…… *What do you think?* *What will happen if……?*	I made this train. *"I like the way the wheels rotate"* I've done this picture. *"I can see you have put lots of detail in there, flowers, people, trees"* I like this because…… I made this…… I did this…… I've done this…
Year 1	I think…… I think……because…… (prior knowledge) I predict……will happen. They are the same because…… (comparing)	It is……and…… The……is……and…… This is …… They are …… They are……because…… It is a (adjective) / (noun) ……has …… …… have ……	They are the same because…… They are different because……is……and……is…… They are alike because they are both……	I think……because……and…… I don't think……because……and…… ……will happen because……	I found……hard/easy because…… I like / dislike because…… I feel that……next time. I could…… In my opinion……because……
Year 2	……same…… ……similar…… ……different…… I think……because…… I predict that……because…… I think they will be alike because they are both……	It / This is……and…… This has …… and …… The……is……and…… They are……and…… I feel……because…… This is a big, round, red, beach ball	They are the same because…… They are similar because…… They are different because….. is……and……is…… They are alike because they are both…… It feels different because this one…… and that one……	I think this……because…… I know this, so I think …… This will happen because……	I think my…… is……because…… Next time I could…… I found……hard/easy because…… I like / dislike……because…… It was interesting because…… I like this because…… I like the part where……because…… What I found hard about this was…… I found this hard/easy because ……
Year 3	I predict that……because…… however/meanwhile/therefore/also…… I predict that……after / as a result of …… This is probable because…… ……and……are different in that……therefore as a result…… After……I predict that…… The outcome will be……because…… *What do you think? How did you come to that prediction?*	It looks/feels/sounds/smells like …… It appears to be……because…… It seems to be……as…… I think it looks like……due to…… It reminds me of……because / therefore / meanwhile…… *Why? How? What? Tell Me About…*	…… and……are both…… ……and……are alike in that…… ……and……are similar because…… ……and……are different in that…… ……is……but……is…… ……is……but……is…… ……is……while……is……	Because I know that……I know …… Due to this……I know that……	I found this work……because…… Next time I could/would/…… Maybe you could try…… / I feel that…… I enjoyed it because…… ……was successful / ambitious because…… You could improve this work by……
Year 4	I predict that……because……however…… Due to the fact that…… (extension of because) As a result of……this will happen because…… All events lead on to……because…… Because……and……are similar, I predict that……will happen. The outcome will be……due to…… Based on……I predict that…… After hearing all the evidence, I think that…… will happen	It looks/feels/tastes/sounds/smells like …… It appears to be……because…… It seems to be like……because…… I think it looks like……because…… It reminds me of……because…… *Why? How? What? Tell Me About…*	……and……are both…… ……and……are alike in that…… ……and……are similar because…… ……and……have the following points in common: …… One similarity between……and……is that…… Another is…… A further…… One difference is…… A further difference is……	Because I know that ……, I know that…… Due to the fact that……I know that……will happen Maybe it's because ……	I enjoyed……because…… ……was successful / ambitious because…… You could improve this work by…… Maybe you could try…… Next time I / you could / would……
Year 5	I predict that…… I believe / I think…… might / or…… If…… Then…… X has happened, therefore I think……	It looks/feels/tastes/sounds/smells like …… It appears to be……because…… It seems to be like……because…… I think it looks like……because…… It reminds me of……because…… *Why? How? What? Tell Me About…*	In some ways….and……are alike. For instance they both…… Another feature they have in common is that…… Furthermore they are both…… However they also differ in some ways. For example……while…… Another difference is……	It is true that…… Can we prove that…… In conclusion…… I would like to prove / disprove…… Perhaps the reason is ……	My view is that……because…… This is supported by the fact that…… In my opinion……furthermore……However…… Possible improvements may include……
Year 6	In light of……I predict…… There is a high / low probability…… The chances of/The likelihood of/Due to the fact that/Upon consideration of the relevant factors	In comparison to…… *Idioms e.g. Peas in a pod* *Develop / Introduce metaphors and similes*.	In some ways……and…..are alike. For instance they both…… Another feature they have in common is that…… Furthermore they are both…… However they also differ in some ways. For example……while…… Another difference is that……whereas…… Finally……but…… The similarities/differences seem more significant that the similarities/differences because…….	Based on the evidence I have been presented with, I can conclude…… Taking everything into account…… Having analysed…… Having pondered…… If we accept this hypothesis, what else will be true? Given this, it is likely that ……	My view is that…… In my opinion…… This is supported by the fact that…… Furthermore……however…… Possible improvements may include…… Or alternatively……

Based on the Tower Hamlets Progression in language Structures Document

East Midlands Academy Trust
Science Curriculum Map – Disciplinary Knowledge

	Key Stage 1 Disciplinary Knowledge	Answering Scientific Questions	Obtaining and Presenting Evidence			Considering Evidence and Evaluating	
		Asking simple questions and recognising that they can be answered in different ways	Performing simple tests	Observing closely using simple equipment	Gathering and recording data to help in answering questions	Using observations and ideas to suggest answers to questions	Identifying and classifying
Year 1	Animals Including Humans (All About Me)		✓		✓	✓	✓
	Everyday Materials (Exploring)		✓		✓	✓	✓
	Everyday Materials (Uses)		✓			✓	✓
	Plants	✓		✓	✓	✓	✓
	Animals Including Humans (About Animals)	✓		✓	✓	✓	✓
	Seasonal Change		✓		✓	✓	✓
Year 2	Living Things and Their Habitats	✓		✓	✓	✓	✓
	Animals Including Humans 1 (Health and Survival)		✓			✓	✓
	Plants	✓	✓	✓	✓	✓	✓
	Uses of Everyday Materials		✓		✓	✓	
	Animals Including Humans 2 (Life Cycles)	✓			✓	✓	✓
	Living Things and Their habitats (Habitats around the world)	✓			✓	✓	✓

	Lower Key Stage 2 Disciplinary Knowledge	Asking relevant questions and using different types of scientific enquiry to answer them	Setting up practical enquiries, comparative and fair tests	Making systematic and careful observations, and where appropriate, taking accurate measurements using standard units. Using a range of equipment, including thermometers and data loggers	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	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Identifying difference, similarities or changes related to simple scientific ideas and processes	Using straightforward scientific evidence to answer questions or support their findings
Year 3	Rocks			✓			✓	✓	✓	
	Animals Including Humans				✓	✓	✓		✓	✓
	Forces and Magnets		✓	✓		✓	✓			
	Plants	✓	✓	✓	✓	✓	✓			
	Light				✓	✓	✓	✓	✓	
	Scientific Enquiry	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year 4	States of Matter			✓	✓	✓		✓	✓	✓
	Animals Including Humans		✓	✓	✓	✓	✓	✓		
	Living Things and Their Habitats (Conservation)			✓	✓	✓	✓			✓
	Living Things and Their Habitats						✓		✓	
	Sound		✓	✓		✓	✓			
	Electricity	✓	✓	✓	✓		✓			✓

	Upper Key Stage 2 Disciplinary Knowledge	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate	Recording data and the results of increasing complexity using scientific diagrams and labels, classification, keys, tables, scatter graphs, bar and line graphs	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	Using test results to make predictions to set up further comparative and fair tests	Identifying scientific evidence that has been used to support or refute ideas or arguments
Year 5	Properties of Materials	✓	✓	✓	✓	✓	
	Changes of Materials	✓			✓	✓	✓
	Animals Including Humans (The Human Life Cycle)		✓	✓	✓		✓
	Living Things and Their Habitats	✓			✓		✓
	Earth and Space		✓		✓	✓	✓
	Forces	✓	✓		✓		✓
Year 6	Light	✓		✓	✓		✓
	Looking After the Environment			✓	✓	✓	✓
	Electricity	✓	✓	✓	✓	✓	
	Animals Including Humans	✓	✓	✓	✓		✓
	Evolution and Inheritance				✓		✓
	Living Things and Their Habitats	✓	✓	✓	✓		✓

Science Rocket Words

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Animals, Including Humans (About Me)	Living Things and Their Habitats	Rocks	States of Matter	Properties of Materials	Light
	senses- sight, taste, touch, smell, hearing	reproduce	metamorphic rock	water cycle	comparative test	luminous
	organs	excrete	igneous rock	sublimation	elasticity	fluorescent
	exercise	respire	sedimentary rock	deposition	plasticity	magnify
	healthy	habitat	extinct	reverse	crude oil	spectrum
	design	microhabitat	weathering	evaporation	insulation	angle of incidence
	baby	survive	acid rain	water vapour	extraction	angle of reflection
	grow	producer	fossil	condensation	thermal conductivity	convex lens
	bones	consumer	mineral	states of matter	inexhaustible	refraction
Autumn 2	Exploring Everyday Materials 1	Animals, Including Humans 1 (Growth)	Animals, Including Humans	Animals, Including Humans	Changes of Materials	Looking After the Environment
	flight	nutrition	skeleton	salivary gland	separate	Global warming
	structure	healthy	tendon	oesophagus	solution	Biodegrade
	transparent	protein	ligament	intestines	solute	Emissions
	opaque	carbohydrate	cartilage	food pyramid	solvent	Combustion
	translucent	dairy	involuntary muscles	nutrient	irreversible	Sustainability
	flexible	fat	voluntary muscles	vitamin	reversible	Species
	rigid	exercise	contract and relax	Digestive system	physical change	Climate change
	oil	hygiene	vertebrae	peristalsis	chemical change	Natural disaster
Spring 1	Exploring Everyday Materials 2	Plants	Forces and Magnets	Living Things and Their Habitats (Conservation)	Animals, Including Humans	Electricity
	magnet	photosynthesis	lodestone	recycling	reproduce	static electricity
	metal	carbon dioxide	horseshoe magnet	endangered	puberty	filament
	wood	oxygen	bar magnet	ecosystem	adolescence	voltage
	plastic	glucose	attract	environment	hormone	insulator
	paper	pollination	repel	pollute	memory	conductor
	man-made	germination	compass	chemical	childhood	fuse
	natural	crop	magnetic needle	contaminate	gestation	component
	recycle	forests	pendulum	emission	fertilisation	variable resistor
Spring 2	Plants	Uses of Everyday Materials	Plants	Living Things and Their Habitats	Living Things and Their Habitats	Animals, Including Humans
	seed	material	germination	classify	Stamen	Circulatory system
	root	property	non-vascular	vertebrate	Stigma	Capillary
	flower	obstacle	clone	invertebrate	Metamorphosis	Microscope
	stem	construction	fungi	cold-blooded	Monotreme	Plasma
	crop	stretchy	insectivorous	warm-blooded	Placental	Platelet
	leaf	elastic	deforestation	sample	Marsupial	Diffusion
	fruit	force	biodiversity	exoskeleton	Endangered	Pulse
	grain	bend	fertilisation	creature	naturalist	stimulant
Summer 1	Animals, Including Humans (All About Animals)	Animals, Including Humans 2 (Life Cycles)	Light	Sound	Earth and Space	Evolution and Inheritance
	pet	life cycle	reflection	vibration	heliocentric	evolution
	mammal	foetus	telescope	amplitude	geocentric	inheritance
	offspring	womb	periscope	soundproof	solar system	DNA
	care	offspring	parallel	sound wave	astronomy	natural selection
	bird	reproduction	ultraviolet rays	frequency	big bang theory	ancestor
	fish	transformation	mirror	decibel	gravitational force	husbandry
	reptile	metamorphosis	shadow	eardrum	orbit	generation
	amphibian	froglet	sun protection	pitch	hemisphere	fossilisation
Summer 2	Seasonal Change	Living Things and Their Habitats (Habitats around the World)	Scientific Enquiry	Electricity	Forces	Living Things and Their habitats
	spring	organism	Solar	complete circuit	Sir Isaac Newton	classify
	summer	rainforest	Prediction	circuit diagram	gravity	prokaryote
	autumn	endangered	Results	voltage	resistance	species
	winter	biodiversity	Acid	conductor	lever	vertebrate
	weather	ocean	Alkali	insulator	gear	invertebrate
	temperature	ecosystem	Evidence	current	pulley	microorganism
	thermometer	desert	Variable	switch	mass	fungi
	forecast	Arctic	Control experiment	resistance	friction	kingdom

Forces	*Electricity and Magnets*	*Waves*	*Earth*	*Matter*	*Organisms*	*Ecosystems*	*Genes*