

# Science Curriculum Overview



## National Curriculum Overview:

Year 1	Year 2	Year3	Year 4	Year 5	Year 6
<b>Working scientifically</b>	<b>Working scientifically</b>	<b>Working scientifically</b>	<b>Working Scientifically</b>	<b>Working scientifically</b>	<b>Working scientifically</b>
	<b>Living things and their habitats</b> Living and dead, describe habitats, basic food chains		<b>Living things and their habitats</b> Group living things using classification keys. Changes in the environment that can threaten life	<b>Living things and their habitats</b> Animal life cycles. Reproduction in plants and animals	<b>Living things and their habitats</b> Classification including micro-organisms, plants and animals.
<b>Plants</b> Name basic parts of plants. identify common plants	<b>Plants</b> What plants need to grow from seed/bulb into plants.	<b>Plants</b> Plant functions including how water is transported. The life cycle of plants			
<b>Animals, including humans</b> Name common animals Name carnivores, herbivores and omnivores Name parts of body and senses	<b>Animals, including humans</b> Animals have offspring, basic needs for survival. Importance of exercise and food hygiene.	<b>Animals, including humans</b> Need for right amount of nutrition. Skeletons and muscles	<b>Animals, including humans</b> Basic function of the digestive system., including teeth. Food chains.	<b>Animals, including humans</b> How humans change with age	<b>Animals, including humans</b> Human circulatory system. Exercise, drugs and lifestyle.
		<b>Rocks</b> Group different rocks, understand how they are formed Fossils			<b>Evolution and inheritance</b> Fossils – link to evolution Offspring different to parents. Animal adaptation—Evolution
<b>Everyday materials</b> Name, describe and sort everyday materials	<b>Uses of everyday materials</b> Uses of materials Changing the shape of materials		<b>States of matter</b> Solids, Liquids, gases Changing state, Evaporation/condensation	<b>Properties/ changes of materials</b> Dissolve, separating, reversible changes. Changes produce new materials.	
		<b>Light</b> The need for light to see. How shadows are formed and how they can change size.	<b>Sound</b> How sound is made/ travels. Pitch and volume		<b>Light</b> Refraction, line of sight, shadows and shapes
		<b>Forces and magnets</b> Compare different surfaces. Magnets		<b>Forces</b> Gravity, air/water resistance, friction. Levers, pulleys & gears	
<b>Seasonal Changes</b> Observe weather and changes across seasons				<b>Earth and Space</b> Movement of Earth, planets & moon. Night and day	
			<b>Electricity</b> Simple circuits, Switches Conductors and insulators		<b>Electricity</b> brightness of lamp, volume of buzzer. symbols circuit diagrams.

## National Curriculum Sequence of Learning:

Year	Topic Title	Biology	Chemistry	Physics/ Earth Science
1	This is Me!	<b>Animals, including humans:</b> Name basic body parts and the senses <b>(B3)</b>		
	Secret Garden	<b>Animals, including humans:</b> Name common animals. Name carnivores, herbivores and omnivores. <b>(B1)</b> <b>Plants:</b> Name the basic parts of plants. Identify common plants <b>(B2)</b>		
	Whatever the Weather		<b>Uses of Everyday materials:</b> Name, describe and sort everyday materials <b>(B3)</b>	<b>Seasonal Changes:</b> Observe weather and changes across seasons <b>(B2)</b>
2	London's Burning!		<b>Uses of Everyday materials:</b> Uses of materials Changing the shape of materials <b>(B4)</b>	
	Location, Location, Location	<b>Animals, including humans:</b> Animals have offspring, basic needs for survival. Importance of exercise and food hygiene. <b>(B3)</b>		
	Rainforests	<b>Living things and their habitats:</b> Living and dead, describe habitats, basic food chains <b>(B2)</b> <b>Plants:</b> What plants need to grow from seed/bulb into plants. <b>(B4)</b>		
3	In My Element			<b>Forces and magnets:</b> Compare different surfaces. Magnets <b>(B4)</b> <b>Light:</b> The need for light to see. How shadows are formed and how they can change size. <b>(B2)</b>
	The Ground Beneath My Feet	<b>Animals, including humans:</b> Skeletons and muscles <b>(B3)</b>	<b>Rocks:</b> Group different rocks and understand how they are formed. Fossils <b>(B3)</b>	
	It's all Greek to Me!	<b>Plants:</b> Plant functions including how water is transported. Life cycle of plants <b>(B3)</b> <b>Animals, including humans:</b> Need for the right amount of nutrition. <b>(B5)</b>		
4	World of Water	<b>Living things and their habitats:</b> Group living things using classification keys. Changes in the environment that can threaten life <b>(B2)</b>	<b>States of matter:</b> Solids, Liquids, gases. Changing state, Evaporation/condensation <b>(B4)</b>	<b>Electricity:</b> Simple circuits, Switches. Conductors and insulators <b>(B5)</b>
	What did the Romans do for Leicester?			
	Insides Out!	<b>Animals, including humans:</b> Basic function of the digestive system., including teeth. Food chains. <b>(B1)</b>		<b>Sound:</b> How sound is made/ travels. Pitch and volume <b>(B3)</b>
5	Planet Earth	<b>Living things and their habitats:</b> Animal life cycles. Reproduction in plants and animals <b>(B4)</b>		<b>Earth and Space</b> Movement of Earth, planets & moon. Night & day <b>(B1)</b> <b>Forces:</b> Gravity, air water resistance, friction. <b>(B2)</b>
	Home from Home			<b>Forces:</b> water resistance, levers, pulleys & gears <b>(B4)</b>
	Egyptians	<b>Animals, including humans:</b> How humans change with age (linked to PSHE) <b>(B5)</b>	<b>Properties/ changes of materials:</b> Dissolve, separating, reversible changes. Changes produce new materials. <b>(B2)</b>	
6	A Child's War			<b>Light:</b> Refraction, line of sight, shadows and shapes <b>(B2)</b> <b>Electricity:</b> brightness of lamp, volume of buzzer. symbols circuit diagrams. <b>(B2)</b>
	Discovery and Exploration	<b>Living things and their habitats:</b> Classification including micro-organisms, plants and animals. <b>(B3)</b> <b>Evolution and inheritance:</b> Fossils – link to evolution. Offspring different to parents. Animal adaptation. <b>(B2)</b>		
	My Heart in Mexico	<b>Animals, including humans:</b> Human circulatory system. Exercise, drugs and lifestyle. <b>(B2)</b>		







## Science Enquiry Questions:

Year	Topic Title	Biology	Chemistry	Physics/ Earth Science
1	This is Me!	<b>Animals, including humans:</b> Are we all the same or are we all different?		
	Secret Garden	<b>Animals, including humans:</b> Are all animals totally different? <b>Plants:</b> What parts are plants made of?		
	Whatever the Weather		<b>Uses of Everyday materials:</b> Are all materials the same?	<b>Seasonal Changes:</b> Is the weather the same every day?
2	London's Burning!		<b>Uses of Everyday materials:</b> what materials could be used to make a home that is safe from wind, rain and fire?	
	Location, Location, Location	<b>Animals, including humans:</b> Is all food good for us?		
	Rainforests	<b>Living things and their habitats:</b> Is everything on Earth alive? <b>Plants:</b> Do plants grow the same amount every day?		
3	In My Element			<b>Forces and magnets:</b> Are all metals attracted to magnets? <b>Light:</b> Why do shadows change during the day?
	The Ground Beneath My Feet	<b>Animals, including humans:</b> How does our body move and stand up?	<b>Rocks:</b> Are all rocks made in the same way?	
	It's all Greek to Me!	<b>Plants:</b> Do all plants need the same conditions to grow? <b>Animals, including humans:</b> What should we eat to get the right amount of nutrition?		
4	World of Water	<b>Living things and their habitats:</b> Are some animals more alike than others?	<b>States of matter:</b> Does water always melt at the same speed?	<b>Electricity:</b> Does electricity flow easily through all objects?
	What did the Romans do for Leicester?			
	Insides Out!	<b>Animals, including humans:</b> How can we know things about a dinosaur from their teeth when they have been extinct for 65 million years?		<b>Sound:</b> How do instruments make different sounds?
5	Planet Earth	<b>Living things and their habitats:</b> what happens when species overproduce or do not produce enough offspring?		<b>Earth and Space</b> What shape is the moon and does it change? <b>Forces:</b> How do parachutes work?
	Home from Home			<b>Forces:</b> Why does a heavy Viking ship stay afloat?
	Egyptians	<b>Animals, including humans:</b> How humans change with age?	<b>Properties/ changes of materials:</b> What happens to salt in water?	
6	A Child's War			<b>Light:</b> Why can I hear round corners but not see round corners? <b>Electricity:</b> Is it possible to change how bright a bulb is or how loud a buzzer is?
	Discovery and Exploration	<b>Living things and their habitats:</b> are all bacteria bad for us? <b>Evolution and inheritance:</b> Why do different species of animals look different?		
	My Heart in Mexico	<b>Animals, including humans:</b> Is our heart rate always the same?		

# Science Summary of outcomes:

Year	Topic Title	Biology	Chemistry	Physics/ Earth Science
1	This is Me!	<b>Animals, including humans:</b> To create human body using a range of materials		
	Secret Garden	<b>Animals, including humans:</b> create a garden that would attract a hedgehog <b>Plants:</b> Create a diagram with real parts of flowers to accurately represent a flower		
	Whatever the Weather		<b>Uses of Everyday materials:</b> decide which would be the most suitable for making an umbrella	<b>Seasonal Changes:</b> use weather symbols to describe the weather in parts of the UK
2	London's Burning!		<b>Uses of Everyday materials:</b> Create a factsheet for a builder to help them build a building that is sturdy and safe from fire	
	Location, Location, Location	<b>Animals, including humans:</b> Compare diet and exercise between Inias and UK		
	Rainforests	<b>Living things and their habitats:</b> Create an animal to suit a habitat <b>Plants:</b> Presentation of how and a plant grows and what it needs to grow		
3	In My Element			<b>Forces and magnets:</b> Iron Man magnetic metals dinner recipe <b>Light:</b> shadow puppet performance using knowledge of materials
	The Ground Beneath My Feet	<b>Animals, including humans:</b> create a fossil using skeleton bones ensuring the skeleton is anatomically correct	<b>Rocks:</b> investigate the most appropriate rock type to build a house on. Share findings using minecraft	
	It's all Greek to Me!	<b>Plants:</b> create a bee-friendly area in school by selecting the most appropriate plants		
4	World of Water	<b>Living things and their habitats:</b> double page spread on how animals adapt to their threatened environments	<b>States of matter:</b> Interactive water cycle collage	<b>Electricity:</b> Investigate ways that things can be powered
	What did the Romans do for Leicester?			
	Insides Out!	<b>Animals, including humans:</b> labelled poster showing digestive system in the human body		<b>Sound:</b> Using musical instruments create pitch and vibration to explain how sounds travel through the ear
5	Planet Earth	<b>Living things and their habitats:</b> Compare how reproduction rates are changing for different species		<b>Earth and Space:</b> Create a 3D model of the Earth, Moon and Sun and the orbital relationships between the two <b>Forces:</b> Design a parachute to support a Rocket landing on the moon/ returning to Earth – thinking about shape, size
	Home from Home			<b>Forces:</b> Modify a basic ship design to make the fastest ship to move through water, considering water resistance and levers (oars)
	Egyptians	<b>Animals, including humans:</b> How humans change with age (links with PSHE)	<b>Properties/ changes of materials:</b> Create a successful filtration system to clean water	
6	A Child's War			<b>Light &amp; electricity:</b> make a searchlight
	Discovery and Exploration	<b>Living things and their habitats:</b> make a classification tree to help pupils to select an appropriate animal that has been adapted to their environment <b>Evolution and inheritance:</b> Presentation: impact of Darwin		
	My Heart in Mexico	<b>Animals, including humans:</b> Double page spread of the heart		

# Science Working Scientifically Summary:

							
Year	Topic Title	Comparative/ fair testing	Research	Observation over time	Pattern seeking	Identifying, grouping and classifying	Problem-solving
1	This is Me!				<b>Animals, including humans:</b> Do taller people have big feet?		
	Secret Garden			<b>Plants:</b> Make observations to create a plant log		<b>Animals, including humans:</b> identify garden/ pond animals	
	Whatever the Weather	<b>Uses of Everyday materials:</b> best materials for an umbrella		<b>Seasonal Changes:</b> Observe weather changes			
2	London's Burning!						<b>Uses of Everyday materials:</b> suitability of materials for a house
	Location, Location, Location		<b>Animals, including humans:</b> Indian and UK diet comparison				
	Rainforests	<b>Plants:</b> conditions for plant growth (water)				<b>Living things and their habitats:</b> classify animals	
3	In My Element	<b>Forces and magnets:</b> investigate magnetic materials	<b>Animals, including humans:</b> comparing skeletons		<b>Light:</b> size of shadows		
	The Ground Beneath My Feet					<b>Rocks:</b> what happens when we add water to different rocks?	
	It's all Greek to Me!			<b>Plants:</b> plants in different conditions			
4	World of Water	<b>States of matter:</b> do liquids freeze at the same temperature or time?	<b>Living things and their habitats:</b> human impact on the local environment				<b>Electricity:</b> Electrical conductors
	What did the Romans do for Leicester?						
	Insides Out!		<b>Animals, including humans:</b> create a human digestive system		<b>Sound:</b> investigation change the volume and pitch of a sound?		
5	Planet Earth	<b>Forces:</b> Air resistance experiment		<b>Earth and Space:</b> Moon diary	<b>Living things and their habitats:</b> life cycles/ habitats and the impact on population		
	Home from Home						<b>Forces:</b> water resistance experiment
	Egyptians		<b>Animals, including humans:</b> How humans change with age				<b>Properties/ changes of materials:</b> filtering clean water
6	A Child's War				<b>Light:</b> prisms, refraction of light		<b>Electricity:</b> change brightness of bulbs, speed of motors, volume of a buzzer in a circuit
	Discovery and Exploration			<b>Living things and their habitats:</b> mould experiment		<b>Evolution and inheritance:</b> animal adaptation	
	My Heart in Mexico	<b>Animals, including humans:</b> Heart rate experiment					

## Key Scientists:

Year	Topic Title	Biology	Chemistry	Physics/ Earth Science
1	This is Me!	<b>Animals, including humans:</b> Ibn Sina (known also as Avicenna)		
	Secret Garden	<b>Animals, including humans:</b> Sir David Attenborough <b>Plants:</b> Alan Mitchell		
	Whatever the Weather		<b>Uses of Everyday materials:</b>	<b>Seasonal Changes:</b>
2	London's Burning!		<b>Uses of Everyday materials:</b> Isambard Kingdom Brunel	
	Location, Location, Location	<b>Animals, including humans:</b> Joe Wicks (Nutritionist)		
	Rainforests	<b>Living things and their habitats:</b> Charles H Turner <b>Plants:</b> George Washington Carver		
3	In My Element			<b>Forces and magnets:</b> Jyotyi Sehdev <b>Light:</b> Hasan Ibn al-Haytham
	The Ground Beneath My Feet	<b>Animals, including humans:</b>	<b>Rocks:</b> Mary Anning.	
	It's all Greek to Me!	<b>Plants:</b>		
4	World of Water	<b>Living things and their habitats:</b> Sang-Mook Lee/ Sylvia Earle	<b>States of matter:</b> John Dalton	<b>Electricity:</b> Thomas Edison/ Michael Faraday
	What did the Romans do for Leicester?			
	Insides Out!	<b>Animals, including humans:</b> Dr Zhaoming Liu		<b>Sound:</b> Alexander Graham Bell
5	Planet Earth	<b>Living things and their habitats:</b> Gretta Thunberg?		<b>Earth and Space</b> Katherine Johnson <b>Forces:</b> Isaac Newton/ Emma England
	Home from Home			<b>Forces:</b>
	Egyptians	<b>Animals, including humans:</b>	<b>Properties/ changes of materials:</b> Marie Curie	
6	A Child's War			<b>Light:</b> Refraction, line of sight, shadows and shapes <b>Electricity:</b> brightness of lamp, volume of buzzer. symbols circuit diagrams.
	Discovery and Exploration	<b>Living things and their habitats:</b> Jane Goodall <b>Evolution and inheritance:</b> Fossils – link to evolution. Offspring different to parents. Animal adaptation.		
	My Heart in Mexico	<b>Animals, including humans:</b> Human circulatory system. Exercise, drugs and lifestyle.		

## Summary of connections to the modern world:

Year	Topic Title	Biology	Chemistry	Physics/ Earth Science
1	This is Me!	<b>Animals, including humans:</b>		
	Secret Garden	<b>Plants:</b>		
	Whatever the Weather		<b>Uses of Everyday materials:</b>	<b>Seasonal Changes:</b>
2	London's Burning!		<b>Uses of Everyday materials:</b> Uses of materials Changing the shape of materials	
	Location, Location, Location	<b>Animals, including humans:</b> Animals have offspring, basic needs for survival. Importance of exercise and food hygiene.		
	Rainforests	<b>Living things and their habitats:</b> Living and dead, describe habitats, basic food chains <b>Plants:</b> What plants need to grow from seed/bulb into plants.		
3	In My Element			<b>Forces and magnets:</b> Compare different surfaces. Magnets <b>Light:</b> The need for light to see. How shadows are formed and how they can change size.
	The Ground Beneath My Feet	<b>Animals, including humans:</b> Need for the right amount of nutrition. Skeletons and muscles	<b>Rocks:</b> Group different rocks and understand how they are formed. Fossils	
	It's all Greek to Me!	<b>Plants:</b> Plant functions including how water is transported. The life cycle of plants		
4	World of Water	<b>Living things and their habitats:</b> Group living things using classification keys. Changes in the environment that can threaten life	<b>States of matter:</b> Solids, Liquids, gases. Changing state, Evaporation/condensation	<b>Electricity:</b> Simple circuits, Switches. Conductors and insulators
	What did the Romans do for Leicester?			
	Insides Out!	<b>Animals, including humans:</b> Basic function of the digestive system., including teeth. Food chains.		<b>Sound:</b> How sound is made/ travels. Pitch and volume
5	Planet Earth	<b>Living things and their habitats:</b> Animal life cycles. Reproduction in plants and animals		<b>Earth and Space</b> Movement of Earth, planets & moon. Night & day
	Home from Home			<b>Forces:</b> Gravity, air/water resistance, friction. Levers, pulleys & gears
	Egyptians	<b>Animals, including humans:</b> How humans change with age	<b>Properties/ changes of materials:</b> Dissolve, separating, reversible changes. Changes produce new materials.	
6	A Child's War			<b>Light:</b> Refraction, line of sight, shadows and shapes <b>Electricity:</b> brightness of lamp, volume of buzzer. symbols circuit diagrams.
	Discovery and Exploration	<b>Living things and their habitats:</b> Classification including micro-organisms, plants and animals. <b>Evolution and inheritance:</b> Fossils – link to evolution. Offspring different to parents. Animal adaptation.		
	My Heart in Mexico	<b>Animals, including humans:</b> Human circulatory system. Exercise, drugs and lifestyle.		