

Science Curriculum Overview



Ark Kings
Academy

Science Overview

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Seasonal Changes	STEM	Plants and Trees	Animals	Materials	Humans
Year 2	Plants	Animals, including humans	Living Things	Materials	STEM	Habitats
Year 3	Animals, including humans	Forces and Magnets	Rocks	STEM	Plants	Light
Year 4	Living Things and their Habitats	States of Matter	Animals, including humans	Sound	Electricity	STEM
Year 5	Forces	Earth and Space	Properties and Changes of Materials		Living Things and their Habitats, incl. Humans	STEM
Year 6	Light	Evolution and Inheritance	Living Things	Cells	Electricity	Animals Including Humans

Scientific Enquiry

	Observing over time	Pattern seeking	Research	Identifying & classifying	Comparative tests	Fair Tests
Year 1						
Seasonal Changes	How does the colour of a UV bead change over the day?	Do trees with bigger leaves lose their leaves first in autumn?	Are there plants that flower in every season? What are they?	How would you group these things based on which season you are most likely to see them in?	In which season does it rain the most?	
Plants and Trees	How does my sunflower/plant change each week?	Is there a pattern in where we find weeds growing in the school grounds?	What are the most common British plants and where can we find them?	How can we sort the leaves that we collected on our walk?	Which type of compost grows the tallest sunflower/plant?	
Animals			How are the animals in Brazil different to the ones that we find in Britain? How does a fish survive underwater?	How can we organise all the zoo animals?		
Materials	What happens to shaving foam over time?	Is there a pattern in the types of materials that are used to make objects in a school?	Which materials can be recycled?	Making an umbrella – which materials are waterproof?	Which materials are the most absorbent?	
Humans	How does my height change over the term?	Do you get better at smelling as you get older?			Is our sense of smell better when we can't see?	
Year 2						
Plants	What happens to my bean after I have planted it?	Do bigger seeds grow into bigger plants?	How can we identify the trees that we observed on our tree hunt?		Do cress seeds grow quicker inside or outside?	
Animals and Humans	How does a tadpole change over time?	Which age group of children wash their hands the most in a day?		Which offspring belongs to which animal?	Do bananas make us run faster?	
Living things			How does a polar bear survive in such a cold environment? How does a cactus survive in a desert with no water?	How would you group things to show which are living, dead or have never been alive?	Do amphibians have more in common with reptiles or fish?	
Everyday Materials	Would a paper boat float forever?		How are plastics made?	Which materials will let electricity go through them, and which will not?	Which material would be best for the roof of the little pig's house?	
Habitats	What conditions do woodlice prefer to live in?	Which habitat do worms prefer – where can we find the most worms?	How does the habitat of the artic compare to the habitat of the rainforest?	What microhabitats are on the school grounds?		
Year 3						
Animals including Humans		Do male humans have larger skulls than female humans?		How do skeletons of different animals compare?		How does the angle that your elbow is bent affect the circumference of your upper arm?
Forces and Magnets	If we magnetise a pin, how long does it stay magnetised for?	Does the size and shape of a magnet affect how strong it is?		Which materials are magnetic?	Which magnet is the strongest?	Will cars travel differently down ramps which have a different surface?
Rocks	How does tumbling change a rock over time?		Who was Mary Anning and what did she discover?		Which soil absorbs the most water?	How does adding different amounts of sand to soil affect how quickly water drains through it?

Plants	What happens to celery when it is left in a glass of coloured water?		What are all the different ways that seeds disperse? What is pollination?		Which conditions help seeds germinate faster?	How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?
Light	When is our classroom the darkest? Is the Sun the same brightness all day?	Are you more likely to have bad eyesight and to wear glasses if you are older?	How does the Sun make light?			How does the distance between the shadow puppet and the screen affect the size of the shadow?

Scientific Enquiry

	Observing over time	Pattern seeking	Research	Identifying & classifying	Comparative tests	Fair Tests
Year 4						
Living things and their habitats		Where in our school is the most polluted?	Can we find other animals to add complexity to our classification key?	Can we use the classification keys to identify all the animals that we caught pond dipping/outdoor sampling?		Does the amount of light affect how many woodlice move around?
States of matter	How does the level of water in a glass change when left on the windowsill?	Is there a pattern in how long it takes different sized ice lollies to melt?	How have scientific tests for predicting the weather changed over time?		Do all liquids freeze at the same temperature?	How does the surface area of a container of water affect how long it takes to evaporate?
Animals inc. humans	How does an egg shell change when it is left in cola?		How do dentists fix broken teeth?	What are the names for all the organs involved in the digestive system? How can we organise our teeth into groups?		
Sound	When is our classroom the quietest?				Which material is best to use for muffling sound in ear defenders?	How does the volume of a drum change as you move further away from it? How does the length of a guitar string/tuning fork affect the pitch of the sound?
Electricity	How long does a battery light a torch for?			How would you group these electrical devices based on where the electricity comes from?	Which material is the best conductor of electricity?	How does the thickness of a conducting material affect how bright the lamp is?
Year 5						
Forces		Do all objects fall through water in the same way?		Can you label and name all the forces acting on the objects in each of these situations?	Which shape parachute takes the longest to fall?	How does the surface area of a container affect the time it takes to sink?
Earth and Space	How does shadow length change over the day?	Is there a pattern between the size of a planet and the time it takes to travel around the sun?	What unusual objects did Jocelyn Bell Burnell discover?	Can you observe and identify all the phases in the cycle of the moon?		
Properties & Changes of materials	How does a container of salt water change over time? How does a nail in salt water change over time?		What did Stephanie Kwolek discover and why was it important? What are micropastics and why are they harming the planet?		Which type of sugar dissolves the fastest?	How does the temperature of tea affect how long it takes for a sugar cube to dissolve?
Living things and their habitats, incl. humans			Can you explain the work of David Attenborough and its importance in society today?	Can you identify all the stages in the human life cycle? What are the differences between the life cycle of an insect and a mammal?	Who grows the fastest, girls or boys?	How does age affect a human's reaction time?
Year 6						
Light		Is there a pattern to how bright it is in school over the day? Is it the same in every classroom?		Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?	Which material is most reflective?	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface?
Evolution and Inheritance		Is there a pattern between the size and shape of a bird's beak and the food it will eat?	What happened when Charles Darwin visited the Galapagos islands?	Compare the skeletons of apes, humans and Neanderthals. How are certain animals adapted to their environments?		
Living Things			What is the significance of the work of scientists such as Carl Linnaeus?	Classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals) and trees.		
Cells	What happens to a piece of bread if you leave it on the windowsill for two weeks?		What do different microorganisms do? Are they always harmful?		Where in the school are the most micro-organisms found? What is the difference between a plant cell and an animal cell?	

<p>Electricity</p>			<p>How has our understanding of electricity changed over time?</p> <p>How are our homes powered? What are the environmental implications?</p>		<p>Which make of battery lasts the longest?</p> <p>Which type of fruit makes the best fruit battery?</p>	<p>How does the voltage of the batteries in a circuit affect the brightness of the lamp?</p>
<p>Animals and Humans</p>	<p>How does my heart rate change over the day?</p>			<p>Which organs of the body make up the circulatory system?</p>	<p>Which types of exercise has the greatest effect on our heart rate?</p>	<p>Can exercising regularly affect your lung capacity?</p>

Year 1

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	Seasons*	STEM: Inventions	Plants	Animals	Materials	Humans
Suggested Content	<p>Compare leaves on the ground and on the trees</p> <p>Describe leaves and their structure</p> <p>Use senses to describe a leaf</p> <p>Compare leaf loss and tree size</p> <p>Measure rainfall at different points in the year</p> <p>Describe weather over a short period of time</p> <p>Describe weather in different the seasons</p> <p>Observe how day length varies</p> <p>Understand why animals hibernate</p> <p><i>*unit runs throughout the year</i></p>	See STEM overview document.	<p>Examine seeds in an apple</p> <p>Visit and examine a variety of local trees over time</p> <p>Find weeds and examine their roots</p> <p>Identify and name plants in the school grounds</p> <p>Note changes in growth of a sunflower</p> <p>Experiment with different types of compost</p> <p>Collect and sort leaves</p>	<p>Name and identify common animals</p> <p>Understand the features of fish, amphibians, reptiles and birds</p> <p>Describe the structures of different animals</p> <p>Compare the structures of different animals</p> <p>Group animals as fish, amphibians, reptiles and birds</p> <p>Identify what different animals eat</p> <p>Classify animals as carnivores, herbivores and omnivores</p> <p>Classify animals based on their features</p>	<p>Identify between an object and how it is made</p> <p>Name a variety of everyday materials including plastic, wood, metal, glass, water and rock</p> <p>Understand which materials can be recycled</p> <p>Examine absorption when selecting a material for a puppy's bedding</p> <p>Consider and experiment with materials for creating an umbrella</p> <p>Identify and name materials based on their properties</p> <p>Describe how shaving foam changes over time</p>	<p>Make close observations of facial features</p> <p>Compare different parts of the body both between people and over time</p> <p>Understand the parts of the body</p> <p>Associate parts of the body with different senses</p> <p>Explore the sense of touch using different parts of the body</p>
Key Vocabulary	<p>humidity</p> <p>cloudy</p> <p>pouring</p> <p>droplet</p> <p>crystal</p> <p>blizzard</p> <p>shiver</p> <p>clear</p>		<p>warmth</p> <p>evergreen</p> <p>deciduous</p> <p>bud</p> <p>leaf</p> <p>branch</p> <p>root</p> <p>stem</p>	<p>carnivore</p> <p>omnivore</p> <p>herbivore</p> <p>identify</p> <p>predator</p> <p>construct</p> <p>responsibility</p> <p>grouping</p>	<p>object</p> <p>material</p> <p>hard/soft</p> <p>stretchy/stiff/bendy</p> <p>rough/smooth</p> <p>waterproof/absorbent</p> <p>everyday</p> <p>dull</p> <p>see through</p> <p>plastic</p> <p>recycle</p>	<p>sight</p> <p>taste</p> <p>cleanliness</p> <p>aroma</p> <p>healthy</p> <p>exercise</p> <p>hearing</p> <p>require</p>
Observing over time	How does the colour of a UV bead change over the day?		How does my sunflower change each week?		What happens to shaving foam over time?	How does my height change over the term?
Pattern seeking	Do trees with bigger leaves lose their leaves first in autumn?		Is there a pattern in where we find weeds growing in the school grounds?		Is there a pattern in the types of materials that are used to make objects in a school?	Do you get better at smelling as you get older?
Research	Are there plants that flower in every season? What are they?		What are the most common British plants and where can we find them?	<p>How are the animals in Brazil different to the ones that we find in Britain?</p> <p>How does a fish survive underwater?</p>	Which materials can be recycled?	
Identifying & classifying	How would you group these things based on which season you are most likely to see them in?		How can we sort the leaves that we collected on our walk?	How can we organise all the zoo animals?	Making an umbrella – which materials are waterproof?	
Comparative tests	In which season does it rain the most?		Which type of compost grows the tallest sunflower?		Which materials are the most absorbent?	Is our sense of smell better when we can't see?

Year 2

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	Plants	Animals, including humans	Living Things	Uses of Everyday Materials	STEM: Inventions	Habitats
Suggested Content	<p>Observe how plants grow from a seed/bulb into a plant</p> <p>Know that plants need water to survive</p> <p>Know plants need light to survive</p> <p>Know plants need a suitable temperature to survive</p> <p>Compare the growth of different sized seeds</p>	<p>Sort and classify different types of food</p> <p>Analyse and describe the healthiness of different meals</p> <p>Choose a physical activity and evaluate the impact on their bodies</p> <p>Examine if certain foods increase our running pace</p> <p>Understand the importance of hygiene for humans</p> <p>Investigate and how germs spread through contact</p> <p>Write a set of instructions for how to wash your hands</p> <p>Match animals to their offspring</p> <p>Sort and group the needs of a human baby</p>	<p>Explore and compare the difference between living and dead things</p> <p>Identify things that have never lived</p> <p>Create a simple food chain</p> <p>Observe tadpoles as they grow</p>	<p>Examine and investigate different materials</p> <p>Describe the properties of everyday materials</p> <p>Design a box to keep an egg safe</p> <p>Identify which materials let electricity pass through them</p> <p>Identify and describe the suitability of everyday materials for particular uses</p> <p>Explore fabrics for a particular use</p> <p>Investigate how materials can be shaped</p> <p>Explore how paper changes when left in water</p> <p>Research how plastics are made</p> <p>Identify a new use for a material</p>	<p>See STEM overview document.</p>	<p>Take a survey to compare animals in two habitats</p> <p>Research to compare two different habitats</p> <p>Describe the features of a habitat that are suitable for woodlouse growth</p>
Key Vocabulary	<p>germinate</p> <p>require</p> <p>stunted</p> <p>dormant</p> <p>shade</p> <p>condition</p> <p>moist</p> <p>produce</p>	<p>exercise</p> <p>hygiene</p> <p>allergy</p> <p>vitamins</p> <p>portion</p> <p>balanced</p> <p>active</p> <p>perspire</p> <p>reproduction</p> <p>frogspawn</p> <p>tadpole</p> <p>hygiene</p> <p>germs</p> <p>spread</p> <p>flock</p> <p>generation</p>	<p>Reproduction</p> <p>Food chain</p> <p>feature</p>	<p>absorbent</p> <p>waterproof</p> <p>stretch</p> <p>man-made material</p> <p>metal</p> <p>suitable</p> <p>properties</p>		<p>suited</p> <p>suitable</p> <p>habitat</p> <p>micro-habitat</p> <p>shelter</p> <p>leaf litter</p>
Observing over time	What happens to my bean after I have planted it?	How does a tadpole change over time?		Would a paper boat float forever?		What conditions do woodlice prefer to live in?
Pattern seeking	Do bigger seeds grow into bigger plants?	Which age group of children wash their hands the most in a day?				Which habitat do worms prefer – where can we find the most worms?
Research	How can we identify the trees that we observed on our tree hunt?		How does a polar bear survive in such a cold environment? How does a cactus survive in a desert with no water?	How are plastics made?		How does the habitat of the arctic compare to the habitat of the rainforest?
Identifying & classifying		Which offspring belongs to which animal?	How would you group things to show which are living, dead or have never been alive?	Which materials will let electricity go through them, and which will not?		What microhabitats are on the school grounds?
Comparative tests	Do cress seeds grow quicker inside or outside?	Do bananas make us run faster?	Do amphibians have more in common with reptiles or fish?	Which material would be best for the roof of the little pig's house?		

Year 3

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	Animals, including humans	Forces and Magnets	Rocks	STEM	Plants	Light
Suggested Content	<p>Examine the structure of a skeleton</p> <p>Describe the functions of a skeleton</p> <p>Examine how skeletons vary between animals</p> <p>Describe how muscles and bones work together</p> <p>Compare strengths of muscles</p> <p>Investigate voluntary and involuntary muscles</p> <p>Learn how to care for our bones</p>	<p>Examine which types of objects are magnetic</p> <p>Undertake experiments to measure the strengths of different magnets</p> <p>Understand how one magnet reacts to another</p> <p>Create a temporary magnet</p> <p>Find out how magnets are used in real-life situations</p>	<p>Understand what rocks are and how they can be classified</p> <p>Examine how rocks change</p> <p>Understand what fossils are and the legacy of Mary Anning</p> <p>Classify fossils by type</p> <p>Explain how fossils are formed</p> <p>Examine different types of soils and understand what it is made up of</p> <p>Examine absorption of different types of soil</p>	<p>See STEM overview document.</p>	<p>Understand what a plant needs for growth</p> <p>Describe the function of roots</p> <p>Describe the function of the stem</p> <p>Describe the function of leaves</p> <p>Describe the function of flowers</p> <p>Understand the life cycle of a plant</p> <p>Compare how plants disperse their seeds</p>	<p>Examine different sources of light</p> <p>Examine how light changes in our classroom over time</p> <p>Understand how light allows us to see different objects</p> <p>Understand how sight changes as people get older</p> <p>Experiment with how light travels through different materials</p> <p>Vary the position, shape and size of a shadow</p> <p>Understand the dangers of light and how you can protect yourself from them</p> <p>Examine different types of mirrors</p> <p>Understand how mirrors can be used in espionage</p>
Key Vocabulary	<p>bone</p> <p>x-ray</p> <p>tendon</p> <p>cartilage</p> <p>ligament</p> <p>voluntary</p> <p>muscle</p> <p>reflex</p> <p>joint</p> <p>hollow</p> <p>fracture</p>	<p>lodestone</p> <p>iron</p> <p>attract</p> <p>repel</p> <p>maglev</p> <p>train</p> <p>magnetic</p> <p>needle</p> <p>pendulum</p> <p>magnetize</p> <p>force</p> <p>poles</p>	<p>fossil</p> <p>sedimentary</p> <p>rock</p> <p>metamorphic</p> <p>rock</p> <p>igneous</p> <p>rock</p> <p>amber</p> <p>magma</p> <p>preserved</p> <p>decay</p> <p>permeable</p> <p>erosion</p>		<p>vascular</p> <p>xylem</p> <p>phloem</p> <p>spore</p> <p>sucrose</p> <p>starch</p> <p>fertilisation</p> <p>conifer</p> <p>transpiration</p> <p>respiration</p>	<p>proximity</p> <p>defined</p> <p>ultraviolet</p> <p>concave</p> <p>convex</p> <p>emit</p> <p>reflect</p> <p>transparent</p> <p>translucent</p> <p>opaque</p>
Observing over time		If we magnetise a pin, how long does it stay magnetised for?	How does tumbling change a rock over time?		What happens to celery when it is left in a glass of coloured water?	When is our classroom the darkest? Is the Sun the same brightness all day?
Pattern seeking	Do male humans have larger skulls than female humans?	Does the size and shape of a magnet affect how strong it is?				Are you more likely to have bad eyesight and to wear glasses if you are older?
Research			Who was Mary Anning and what did she discover?		What are all the different ways that seeds disperse? What is pollination?	How does the Sun make light?
Identifying & classifying	How do skeletons of different animals compare?	Which materials are magnetic?				
Comparative tests		Which magnet is the strongest?	Which soil absorbs the most water?		Which conditions help seeds germinate faster?	
Fair Tests	How does the angle that your elbow is bent affect the circumference of your upper arm?	Will cars travel differently down ramps which have a different surface?	How does adding different amounts of sand to soil affect how quickly water drains through it?		How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?	How does the distance between the shadow puppet and the screen affect the size of the shadow?

Year 4

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	Living Things and their Habitats	States of Matter	Animals, including humans	Sound	Electricity	STEM
Suggested Content	<p>Recognise different ways animals can be grouped</p> <p>Classify animals using classification keys</p> <p>Add animals to a classification key</p> <p>Examine how a light changes the behaviour of woodlice</p> <p>Undertake investigations to find out where in the school is most polluted</p>	<p>Examine features of the three states of matter</p> <p>Classify materials and objects by state of Matter</p> <p>Investigate how quickly solids melt</p> <p>Find out if all liquids freeze at the same temperature</p> <p>Investigate evaporation pace</p> <p>Understand condensation</p> <p>Examine how water changes state in nature</p>	<p>Identify types of teeth in humans</p> <p>Describe the functions of different teeth types</p> <p>Compare teeth between carnivores and herbivores</p> <p>Examine tooth decay</p> <p>Describe how teeth should be cared for</p> <p>Understand the purpose of the digestive system</p> <p>Describe the functions of the parts of the digestive system</p> <p>Examine and describe a food chain</p> <p>Construct a food chain using provided information</p>	<p>Investigate the volume of sound at different points in the day</p> <p>Explore how sounds are made by vibrations</p> <p>Explore how sounds travel through different objects</p> <p>Investigate how sounds change with distance from the source</p> <p>Find patterns between the volume of a sound and the strength of the vibrations it produces</p> <p>Explore how the pitch of an object can be changed</p>	<p>Identify and group appliances that run on Electricity</p> <p>Construct simple series cells using common electrical parts</p> <p>Identify whether a lamp will light in a circuit</p> <p>Investigate whether materials are conductors or insulators or electricity</p> <p>Examine the thickness of a conductor on the brightness of a bulb</p> <p>Investigate battery life</p>	<p>See STEM overview document.</p>
Key Vocabulary	<p>habitat</p> <p>ecology</p> <p>bacteria</p> <p>reintroduce</p> <p>emission</p> <p>pesticide</p> <p>complacent</p> <p>woodland</p> <p>ecosystem</p> <p>interdependent</p>	<p>solid</p> <p>liquid</p> <p>gas</p> <p>grains</p> <p>melting</p> <p>freezing</p> <p>evaporation</p> <p>condensation</p> <p>transpiration</p> <p>precipitation</p>	<p>decay</p> <p>digestion</p> <p>enamel</p> <p>plaque</p> <p>stomach</p> <p>intestine</p> <p>predator</p> <p>prey</p> <p>omnivore</p> <p>oesophagus</p>	<p>eardrum</p> <p>sound</p> <p>waves</p> <p>decibel</p> <p>frequency</p> <p>distorted</p> <p>muffle</p> <p>vibration</p> <p>insulation</p> <p>vocal</p> <p>chords</p> <p>pitch</p>	<p>electricity</p> <p>electron</p> <p>battery</p> <p>motor</p> <p>bulb</p> <p>circuit</p> <p>switch</p> <p>insulator</p> <p>conductor</p> <p>national grid</p>	
Observing over time		How does the level of water in a glass change when left on the windowsill?	How does an egg shell change when it is left in cola?	When is our classroom the quietest?	How long does a battery light a torch for?	
Pattern seeking	Where in our school is the most polluted?	Is there a pattern in how long it takes different sized ice lollies to melt?				
Research	Can we find other animals to add complexity to our classification key?	How have scientific tests for predicting the weather changed over time?	How do dentists fix broken teeth?			
Identifying & classifying	Can we use the classification keys to identify all the animals that we caught pond dipping?		<p>What are the names for all the organs involved in the digestive system?</p> <p>How can we organise our teeth into groups?</p>		How would you group these electrical devices based on where the electricity comes from?	
Comparative tests		Do all liquids freeze at the same temperature?		Which material is best to use for muffling sound in ear defenders?	Which material is the best conductor of electricity?	
Fair Tests	Does the amount of light affect how many woodlice move around?	How does the surface area of a container of water affect how long it takes to evaporate?		<p>How does the volume of a drum change as you move further away from it?</p> <p>How does the length of a guitar string/tuning fork affect the pitch of the sound?</p>	How does the thickness of a conducting material affect how bright the lamp is?	

Year 5

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	Forces	Earth and Space	Properties and Changes of Materials		Living Things and their Habitats, incl. Humans	STEM
Suggested Content	<p>Understand what a force is and how it can affect an object</p> <p>Investigate friction caused by different materials</p> <p>Investigate whether the mass of an object affects how quickly it falls to the ground</p> <p>Explore the effects of air resistance</p> <p>Understand the effects of water resistance and up-thrust</p> <p>Explain how simple levers work</p>	<p>Describe the movements of the planets in the solar system</p> <p>Compare key features of the planets in the solar system</p> <p>Describe how our knowledge of the solar system has changed over time</p> <p>Explain why day and night occur</p> <p>Investigate how shadows change throughout the day</p> <p>Identify and order the phases in the cycle of the moon</p>	<p>Consolidate our knowledge of state of matter</p> <p>Classify materials based on their conductivity</p> <p>Understand and explain how simple solutions are made</p> <p>Investigate how the temperature of water affects how much sugar can be dissolved?</p> <p>Investigate which type of sugar dissolves the fastest</p> <p>Examine how a container of salt changes over time</p> <p>Utilise evaporation as a method for separation of a solution</p> <p>Make informed decisions about how to separate solutions and mixtures</p> <p>Examine how a nail in salt water changes over time</p> <p>Understand that some changed can be reversed whilst others cannot</p>		<p>Identify all stages in the human life cycle and understand changes which happen during adolescence</p> <p>Compare growth by both age and gender and describe changes that happen as humans develop to old age</p> <p>Investigate how age affects a human's reaction time</p> <p>Examine gestation in a variety of animals</p> <p>Research about a famous naturalist</p> <p>Order the life cycle of a house fly</p> <p>Seek patterns in life cycles of different animals</p> <p>Classify and group animals based on their life cycles</p> <p>Grow plants from parts of a parent plant</p>	See STEM overview document.
Key Vocabulary	<p>air resistance</p> <p>water resistance</p> <p>upthrust</p> <p>friction</p> <p>newton</p> <p>mass</p> <p>lever</p> <p>fulcrum</p> <p>pulley</p> <p>equilibrium</p>	<p>universe</p> <p>orbit</p> <p>solar system</p> <p>axis</p> <p>spherical</p> <p>revolve</p> <p>rotate</p> <p>gravitational pull</p> <p>solar eclipse</p> <p>lunar eclipse</p>	<p>chemical change</p> <p>physical change</p> <p>particle</p> <p>solution</p> <p>substance</p> <p>sieve</p> <p>filter</p> <p>evaporate</p> <p>polymers</p> <p>reversible</p> <p>irreversible</p>		<p>gestation</p> <p>puberty</p> <p>reproduce</p> <p>adolescence</p> <p>hormone</p> <p>dormant</p> <p>fertilisation</p> <p>chromosome</p> <p>degeneration</p> <p>mammal</p> <p>amphibian</p> <p>insect</p> <p>life-cycle</p> <p>naturalist</p> <p>(a)sexual reproduction</p> <p>environment</p> <p>tuber diversity</p>	
Observing over time		How does shadow length change over the day?	How does a container of saltwater change over time? How does a nail in saltwater change over time?			
Pattern seeking	Do all objects fall through water in the same way?	Is there a pattern between the size of a planet and the time it takes to travel around the sun?				
Research		What unusual objects did Jocelyn Bell Burnell discover?	What did Stephanie Kwolek discover and why was it important? What are micropastics and why are they harming the planet?		Can you explain the work of David Attenborough and its importance in society today?	
Identifying & classifying	Can you label and name all the forces acting on the objects in each of these situations?	Can you observe and identify all the phases in the cycle of the moon?			Can you identify all the stages in the human life cycle? What are the differences between the life cycle of an insect and a mammal?	
Comparative tests	Which shape parachute takes the longest to fall?		Which type of sugar dissolves the fastest?		Who grows the fastest, girls or boys?	
Fair Tests	How does the surface area of a container affect the time it takes to sink?		How does the temperature of tea affect how long it takes for a sugar cube to dissolve?		How does age affect a human's reaction time?	

Year 6

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	Light	Evolution and Inheritance	Living Things	Cells	Electricity	Animals, including humans
Suggested Content	<p>Examine brightness over the day in different locations</p> <p>Explore the reflectiveness of materials</p> <p>Understand that light travels in straight lines</p> <p>Predict light direction using mirrors</p> <p>Investigate shadow length and understand how shadow size can be altered</p> <p>Explore the shapes of shadows of different objects</p> <p>Experiment with light refraction</p>	<p>Understand how animals are adapted to their environment</p> <p>Explain the discoveries of Charles Darwin</p> <p>Describe how variations become adaptations</p> <p>Describe types of fossils</p> <p>Understand the evidence for evolution</p> <p>Detail the process of fossilisation</p> <p>Explain how selective breeding in animals is utilised</p>	<p>Give reasons for classifying plants and animals based on specific characteristics</p> <p>Understand the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided.</p> <p>Discuss reasons why living things are placed in one group and not another</p> <p>Find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification</p> <p>Research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system</p>	<p>Understand what a cell is</p> <p>Examine animal and plant tissue under a microscope</p> <p>Describe the structure of an animal cell</p> <p>Describe the structure of a plant cell</p> <p>Discuss the benefits and dangers of bacterial cells</p> <p>Experiment with the growth of bacteria</p>	<p>Understand how static electricity is created</p> <p>Investigate the creation of static electricity</p> <p>Understand how the understanding of electricity developed</p> <p>Investigate resistance in bulbs</p> <p>Measure amplitude from different energy sources</p> <p>Create an electromagnet</p> <p>How are our homes powered? What are the environmental?</p>	<p>Describe the respiratory system</p> <p>Understand the impact of smoking on the lungs</p> <p>Describe the circulatory system</p> <p>Describe how the heart pumps blood around the body</p> <p>Examine the effects of exercise on the pulse</p> <p>Explain the impact of a poor diet on the circulatory system</p>
Key Vocabulary	<p>light rays</p> <p>haze</p> <p>distort</p> <p>primary colour</p> <p>secondary colour</p> <p>variance</p> <p>obstruct</p> <p>alteration</p> <p>refraction</p> <p>fluorescent</p>	<p>variation</p> <p>offspring</p> <p>ancestor</p> <p>natural selection</p> <p>fossilisation</p> <p>decompose</p> <p>obstruct</p> <p>sediment</p> <p>dissolve</p> <p>inherit</p> <p>offspring</p>	<p>classification</p> <p>division</p> <p>micro-organism</p> <p>vertebrates</p> <p>amphibian</p> <p>reptile</p> <p>mammal</p> <p>invertebrates</p>	<p>magnification</p> <p>nucleus</p> <p>cell</p> <p>membrane</p> <p>cytoplasm</p> <p>cellulose</p> <p>chloroplast</p> <p>photosynthesis</p> <p>reproduce</p> <p>contamination</p> <p>sample</p>	<p>static electricity</p> <p>charge</p> <p>electron</p> <p>insulator</p> <p>conductor</p> <p>short circuit</p> <p>fuse</p> <p>electromagnet</p> <p>detector</p> <p>synchronise</p>	<p>respiration</p> <p>displace</p> <p>trachea</p> <p>cilia</p> <p>circulation</p> <p>blood vessels</p> <p>pulse</p> <p>BPM</p> <p>oxygen</p> <p>debt</p> <p>heart attack</p>
Observing over time				What happens to a piece of bread if you leave it on the windowsill for two weeks?		How does my heart rate change over the day?
Pattern seeking	Is there a pattern to how bright it is in school over the day? Is it the same in every classroom?	Is there a pattern between the size and shape of a bird's beak and the food it will eat?				
Research		What happened when Charles Darwin visited the Galapagos islands?	What is the significance of the work of scientists such as Carl Linnaeus?	What do different microorganisms do? Are they always harmful?	How has our understanding of electricity changed over time? How are our homes powered? What are the environmental implications?	
Identifying & classifying	Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?	Compare the skeletons of apes, humans and Neanderthals How are certain animals adapted to their environments?	Classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals)			Which organs of the body make up the circulatory system?
Comparative tests	Which material is most reflective?			Where in the school are the most micro-organisms found?	Which make of battery lasts the longest? Which type of fruit makes the best fruity battery?	Which types of exercise has the greatest effect on our heart rate?
Fair Tests	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface?				How does the voltage of the batteries in a circuit affect the brightness of the lamp?	Can exercising regularly affect your lung capacity?