

Science Topic List

Science



KEY STAGE	YEAR	TOPIC NAME	ENQUIRY QUESTIONS	MAIN CURRICULUM FOCUS	BIG FINISH
KEY STAGE 1	YEAR 1	Plants and animals where we live	- Can we create a map of the school grounds (or local park) and map of the location of plants and animals we find? - Can we place photographs of plants on the map to show where they were found? - Can we label the photographs with plant names? - Can we use the map to describe what was found where? - Can we add the locations of bird feeders to school map?	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. Animals (including humans) - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).	
		Who am I?	- How have fashions changed? - Eyes and sight – how do the styles of glasses worn by our grandparents compare to the styles worn today? - How has technology improved? - Ears and hearing – how have hearing aids changed?	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	
		Celebrations	- Birthdays – how are they celebrated in other countries? - Light and sight – what celebrations of light are there in other countries? - Sound and hearing – what musical instruments from different countries are made from local resources? Consider bamboo. - Taste – what do people eat in other countries?	- 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. - 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.	

		Polar Places	• Can we compare clothing for explorers in different climates? • How would have different explorers dressed? • Properties of materials – how are explorers' clothes different today? • Animals – how do explorers' descriptions/drawings of animals observed compare to the real things? • Food – what types of food did explorers eat, and was it different from the food we eat?	• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	
		On Safari	• Can we create a map of different habitats in the school grounds? • Can we compare different habitats in the school grounds? • Properties of materials – what should we take on safari? • Animals – similarities and differences between animals studied	Identify and name a variety of common animals that are carnivores, herbivores and omnivores	
		Holiday	• Can we compare traveling to seaside locations by plane or by train?	• Identify what animals' and plants that share common habitats. Identify the characteristics of habitats that support life • Identify popular holiday destinations and compare these. List the main features of these destinations •	

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KEY STAGE 1	YEAR 2	Our Local Environment	• Can we link the seasons to plant life cycles? • What can we find in the school grounds that is living/dead in different seasons? • How do habitats change over the seasons? Consider plants and animals. • What is this habitat like now? How will it be different in other seasons? • How will this affect food chains? Consider if it is colder or there are no leaves on trees. • Can we record changes using photographs and a diary/science notebook?	• Ask simple questions and recognise that they can be answered in different ways. • Observe closely, using simple equipment. • Perform simple tests. Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions.	
		Materials Monster	• What types of materials caused the Great Fire of London to spread so quickly? • What types of materials were the buildings made from and what was stored in the buildings?	• 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	Go on a Great British Picnic

		• What types of materials are used for houses today? • How can we make buildings safer by choosing different types of materials? • People escaped the fire found shelter in tents and shacks – which materials would make a good shelter? • To prevent the spread of fire, buildings were pulled down using 'fire hooks' – can we make a model 'fire hook' with pipe cleaners or thin modelling wire? Consider what to do to make the hook – did you bend/twist/pull/squash into shape?	some materials can be changed by squashing, bending, twisting and stretching.	
	Healthy Me	• Can we explore the traditional foods of the different countries of the UK? • Can we sort food into groups, for instance from the land and from the sea? • Look at fish packaging (tins and frozen food packets) – which oceans does the fish come from? Can we locate these oceans? • Look at fresh fruit and vegetables – how many are grown locally? Can we use a map of the United Kingdom to locate where they were grown? • Collect food packaging and work out where food originated – can we add the packaging to a world map to say where it came from?	• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Children will be able to describe the importance for humans of exercise, eating the right amounts of different food, and hygiene
	Little Masterchefs	• What type of 'holiday food' do you like? What types of 'holiday food' did your grandparents eat? • Look at holiday photographs from the 1950s/1960s – what types of 'holiday food' did people eat? • How can we keep food cool on a hot day? • How could you keep an ice-lolly cool, so it doesn't melt too quickly? Consider testing different wrapping materials.	• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	
	Young Gardeners	• Can you name the different parts of a plant? What do seeds need for germination? How do plants grow? • Can we use scientific vocabulary to describe how you made the statue? Did	• 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.	

			you bend/twist/pull/squash into shape?		
		Squash, Bend, Twist and Stretch	• Can we make a statue of one of our 'Local Heroes' out of modelling clay?	•	

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LOWER KEY STAGE 2	YEAR 3	Food and our Bodies	- Can we explore the food of Stone Age people? - What did people in the Stone Age eat and why? - How was the Stone Age diet different from our diet?	- 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.	Invent a locational map game, quiz or puzzle
		How does your garden grow?	Can we research a flowering plant in a particular climate and produce an illustrated fact file? Consider including its life cycle, a labelled diagram and comparing it to a local plant that has been studied.	- Identify and describe the functions of different parts of flowering plants: roots, - stem/trunk, leaves and flowers - Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - Investigate the way in which water is transported within plants - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	
		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	
		Light and Shadows	How do shadows change at different times of the day?	- Recognise that they need light in order to see things and that dark is the absence of light - Notice that light is reflected from surfaces - Recognise that light from the sun can be dangerous and that there are ways to protect their eyes - Recognise that shadows are formed when the light from a light source is blocked by an opaque object - Find patterns in the way that the size of shadows change.	
		Rocks and Fossils	Can we identify the types of rock used in the construction of significant buildings? Where did the rock come from?	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Produce a 'Big Finish' climate report

			- Properties of materials – why are certain rocks used? For example, slate is good for roofs. - Can we look for examples of weathering? Which types of rocks have been weathered? How can we know? - Using hand lenses to look closely at sedimentary rocks such as sandstone, can we find any fossils?	- 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.	
		The nappy challenge	- Can we explore the environmental impact of disposable nappies (and other baby products such as wet wipes) on the UK coastline? - Can we research alternatives to disposable nappies which could have a lower environmental impact?	- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment including thermometers and data loggers. - Gather, record, classify and present data in a variety of ways to help in answering questions. - Ask relevant questions and use different types of scientific enquiries to answer them. - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - Set up simple practical enquiries, comparative and fair tests. - Use straightforward scientific evidence to answer questions or to support their findings.	

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LOWER KEY STAGE 2	YEAR 4	Living things	- Can we explore and compare animals in different habitats? Consider South American rainforests, and the Arizona Desert in North America. - Can we research animals using information texts? - How are animals the same, and how are animals different?	- Recognise that living things can be grouped in a variety of ways - Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - Recognise that environments can change and that this can sometimes pose dangers to living things.	
		Looking at states	Can we look at states prior to the water cycle? (This will link to the following term.)	- 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.	

		The Big Build	- Can we research the bridges that cross the 'most significant rivers'? (This will provide a context for bridge building.) - Can we identify different examples of types of designs?		
		Teeth and Eating		- 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.	
		What's that 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.	
		Power it up	Can we design a burglar alarm and build the circuit?	- 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.	

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UPPER KEY STAGE 2	YEAR 5	Material world	- Can we explore the properties of Anglo-Saxon materials? - How did the Anglo-Saxons use the materials available to them for construction, weapons and jewellery?	- 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	
		Amazing Changes			
		Out of this World		- Describe the movement of the Earth, and other planets, relative to the Sun in the - solar system - Describe the movement of the Moon relative to the Earth - Describe the Sun, Earth and Moon as approximately spherical bodies - Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	
		Let's Get Moving	- Can we explore the air resistance, water resistance and friction involved in Alpine sports? - Can we investigate skiing, snowboarding and paragliding? - Explore skis/snowboards – how does waxing skis affect friction? - Paragliding – does the size and shape of the canopy make a difference? - Can we apply learning from 'Amazing Changes' to explore dissolving/melting ice?	- 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.	
		Growing up and growing old	Can we compare the life cycles of the people who undertook significant journeys to our own life cycles?	Describe the changes as humans develop to old age	
		Circle of life		Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.	

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UPPER	YEAR 6	Classifying living things	- Can we explore the plant and animal classifications and classification kingdoms of the Amazon rainforest? - Can we compare the Amazon	- 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	

		rainforest's flora and fauna to that of the UK?	Describe the ways in which nutrients and water are transported within animals, including humans.	
	Light	- Can we research how the Maya used what they knew about light to illuminate building interiors? At the spring and autumn equinoxes, for example, the Sun might be made to cast its rays through small openings in a Maya observatory, lighting up the observatory's interior walls. Other alignments might relate to the exteriors of temples and palaces. - Can we construct a simple light box with an image inside? Use what we know about how light travels, to shine a light through a small hole in the box to illuminate a picture inside. - Can we insert a mirror, to reflect the light off one wall of the box and onto the picture on the wall?	- 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.	
	Electricity	- By investigating solar panels, motors and propellers, can we research alternative ways of generating electricity? - What are the advantages and disadvantages of alternative electricity sources, compared to using electrical cells and batteries?	- 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.	
	Healthy bodies	- Using the Olympics as a starting point, can we scientifically investigate the circulatory system and exercise? - How does the diet of the Ancient Greeks compare with our diets? - How do the proportions of different types of food compare? - Can we research the diets of contemporary Olympic athletes?	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - Use test results to make predictions to set up further comparative and fair tests. - Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. - Identifying scientific evidence that has been used to support or refute ideas or arguments.	
	Evolution and inheritance		- 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.	
	The Titanic	What are scientific enquiry skills? What makes a good research? How to present information successfully? What is fascinating	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	

			about Dinosaurs?	• Take measurements, use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	
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