

At The Bishops' we aim to provide a rich and engaging science curriculum that meets the needs of the children in our community. Our Science curriculum is designed to deepen knowledge and develop skills, ensuring effective progression within the subject and across all year groups. The science curriculum is delivered through highly effective 'quality first teaching' which aims to stimulate pupils' interest in scientific phenomena and to foster a sense of awe and wonder. Through this delivery we provide children with the foundations for understanding the world.

The types of scientific enquiry are as follows:

- Observing changes over time
- Pattern seeking
- Identifying, Classifying and Grouping
- Comparative and fair testing (controlled investigations)
- Researching using secondary sources

Vocabulary underpins scientific understanding. At The Bishops' C of E Learning Academy we equip our pupils with scientific terminology, allowing them to effectively communicate their findings and understanding. These skills not only help our pupils become scientists, it also enables them to use these skills and vocabulary to further access the rest of the curriculum. We enrich our science curriculum by varying the ways in which we reach our learning objectives through our exciting and engaging topics. By doing so, we can take a child's imagination and curiosity to the next level. Teaching different aspects of science through topic work as well as the National Curriculum, we believe, gives pupils the best of both structure and freedom in their learning, allowing them to apply their scientific knowledge to abstract contexts.

Outdoor learning is instilled in our ethos as a school and each year group are able to access different settings in their local community. We believe this builds a positive relationship between the children and their local environment which is vital to enable them to understand the changing world around them. Children learn through hands on investigation and memories which bring their learning to life. They are able to use skills they have acquired in the classroom and apply these to real world scenarios.

We believe that by integrating these three different approaches we are able to give children a broad and balanced introduction to science: igniting their passion, encouraging curiosity, promoting a love of learning as well as the world and phenomena around them. In doing this we know that when children leave The Bishops' C of E Learning Academy they are equipped to access and thrive in future scientific learning.



Curriculum Intent, Implementation and Impact Overview								
Subject: Science	Subject Leader: Ingrid Yeomans							
Intent	Implementation	Impact						
 To ensure all children : Develop an understanding of the world around them. Are able to become 	Clear and comprehensive scheme of work in line with the National Curriculum – Teaching and Learning should show progression across all key stages within the strands of Science. Teaching and Learning should plan for practical investigative opportunities within Science lessons and by incorporating TAPS Working Scientifically assessments at least once within each topic taught.	Enthusiastic, excited and curious children who are able to communicate their understanding of the world in a scientific way.						
 Are able to become enquiry based learners. Understand different areas of scientific 	Knowledge Organisers Children have access to key language and meanings in order to understand and readily apply to their written, mathematical and verbal communication of their skills. Children will access resources to acquire learning through Science equipment, digital	Children will achieve age related expectations in Science at the end of their cohort year.						
enquiry and their uses.Cover the key aspects of the science national	technology, practical investigations and photographic equipment <i>Children will use a range of secondary resources to develop their knowledge and</i> <i>understanding that is integral to their learning. Resources are checked to ensure they are</i> <i>suitable, appropriate and useful.</i> Children will reflect on previous learning and cross curricula links will be made through	Children will retain knowledge that is pertinent to understand the uses of Science today and how vital it is to the world's future prosperity.						
 curriculum in engaging, immersive topics. Receive high quality 	Literacy and Theme. Children will be able to build on prior knowledge and link ideas together, enabling them to question and become enquiry based learners.	Children will be able to question ideas and reflect on knowledge.						
science lessons, taught by confident teachers.	Educational Visits Where applicable links to Science will be made to develop the children's topical learning. British Values and PSHE	Children will work collaboratively and practically to investigate and experiment.						
 Are given a range of learning experience which results in the acquisition of knowledge. 	Children will learn and revisit the importance of our world and how it should be treated. Monitoring A regular book scrutiny and learning walk will enable the curriculum leaders to check coverage and progression. Staff Development Teachers have access to CPD to improve their confidence and ability to teach science	Children will be able to explain the process they have taken and be able to reason scientifically.						
	effectively. Links with the Ogden Trust to develop teaching of Physics across the school.							

Science skills and knowledge progression

Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	Using senses to explore the world around them Showing curiosity about objects Asking simple questions when prompted Making observations and performing simple tests to test their ideas Developing ideas of sequences, cause effect Making predictions and reviewing how well their approach worked	asking simple questions when prompted Make relevant observations performing simple tests, with support identifying and classifying use observations and ideas to suggest answers to questions with prompting suggest how findings could be recorded	asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions	asking relevant questions when promptedsetting up simple practical enquiries, comparative and fair testsmaking systematic observations using simple equipmentWith prompting, use various ways of recording, grouping and displaying evidencesuggest how findings could be reportedwith prompting, suggest conclusions from enquiriesidentifying differences, similarities or changes related to simple scientific ideas and processes	asking relevant questions and using different types of scientific enquiries to answer them setting up simple 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,	With prompting, plan different types of scientific enquiries to answer questions With prompting, recognise and control variables where necessary Select, with prompting, and use appropriate equipment to take readings Take precise measurements using standard units Take and process repeat readings Record data and results Record data using labelled diagrams, keys, tables and charts	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 when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings

				using straightforward scientific evidence to answer questions or to support their findings. suggest possible improvements or further questions to investigate	keys, bar charts, and tables reporting 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 differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	Use line graphs to record data Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships With support, present findings from enquiries orally and in writing With prompting, identify that not all results may be trustworthy Suggest how evidence can support conclusions Suggest further comparative or fair tests	from enquiries, including conclusions, causal relationships and explanations of and a 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
Area of Study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	Plant seeds and care for growing plants	identify and name a variety of common wild and garden	observe and describe how seeds	identify and describe the functions of different parts of			

	Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Explore the natural world around them, making observations and drawing pictures of animals and plants.	plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees	and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	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			
KEY Vocabulary	Plant, Flower, Grass, Tree, seed, seedling, bulb, leaves, stem, blossom	Deciduous, Evergreen Trees, Leaves, Flowers, Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem	Seeds, Bulb, Water, Light, Temperature, Growth	Air, Light, water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower			
Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans.	Use all their senses in hands on exploration of natural materials.	identify and name a variety of common animals including fish,	notice that animals, including humans, have offspring which grow into adults	identify that animals, including humans, need the right types and amount of nutrition, and that	describe the simple functions of the basic parts of the digestive system in humans	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

	Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Recognise some environments that are different to the one in which they live. Explore the natural world around them, making observations and drawing pictures of animals and plants. Understanding the importance of healthy choices.	amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	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	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	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		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
KEY Vocabulary	Plant, Animal, Exercise, Healthy, Teeth Smell, Taste, Hear, Touch, Sight Herbivore, Carnivore	Senses Fish, Reptiles Mammals, Birds, Amphibians Herbivore, Carnivore, Omnivore, Wings, Beak	Survival, Water, Air Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene	Nutrition Movement, Muscles, Bones, Skull, Skeleton	Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar	Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty	Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration
Area of Study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Everyday Materials	Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice.	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				
KEY Vocabulary	Sand, Playdough, Paint, Mix, Soft, Hard, Bumpy, Bendy, Strong, Smooth, Wood, Plastic, Glass, Waterproof, Float, Sink	Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth	Stretchy, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent, Translucent, Brick, Paper, Fabric, Squashing, Bending, Twisting, Stretching, Elastic, Foil				
Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes	Talk about what they see, using a wide vocabulary.	observe changes across the 4 seasons					

	Explore and make	observe and describe					
	observations of	weather associated					
	the natural world	with the seasons and					
	around them.	how day length varies					
	Describe what						
	they see, hear and						
	feel whilst outside						
	during different						
	seasons.						
	Recognise some						
	environments that						
	are different to the						
	one in which they						
	live.						
	Understand the						
	effect of changing						
	seasons on the						
	natural world						
	around them.						
KEY	Weather, rain,	Summer, Spring,					
Vocabulary	sunshine, snow,	Autumn, Winter, Sun,					
· · · · · · · · · · · · · · · · · · ·	cloud, frost, day,	Day, Moon, Night,					
	night, autumn,	Light, Dark					
	spring, summer,						
	winter,						
	hibernation,						
	autumnal changes						
Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living	Use all their		explore and		recognise that living	describe the	describe how living
things and	senses in hands on		compare the		things can be grouped	differences in the	things are classified
their	exploration of		differences between		in a variety of ways	life cycles of a	into broad groups
habitats	natural materials.		things that are living,		. ,	, mammal, an	according to common
	Understand the		dead, and things		explore and use	amphibian, an insect	observable
	key features of the		that have never		classification keys to	and a bird	characteristics and
	life cycle of a plant		been alive		help group, identify		based on similarities
	and an animal.				and name a variety of		and differences,

	Begin to understand the need to respect and care for the natural environment and all living things. Recognise some environments that are different to the one in which they live. Explore the natural world around them, making observations and drawing pictures of animals and plants. Use a wide range of newly taught vocabulary.	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	living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things	describe the life process of reproduction in some plants and animals.	including micro- organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics
KEY Vocabulary	Plant, Animal. Home, Habitat,	name different sources of food Living, Dead, Habitat, Energy,	Vertebrates, Fish, Amphibians, Reptiles,	Mammal, Reproduction,	Classification, Vertebrates,
	Camouflage, Minibeast, Insects, Predator, Prey, Carnivore, Herbivore	Food chain, Predator, Prey, Woodland, Pond, Desert	Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats	Insect, Amphibian, Bird, Offspring	Invertebrates, Micro- Organisms, Amphibians, Reptiles, Mammals, Insects

Area of Study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks	Use all their senses			compare and group			
	in hands on			together different			
	exploration of			kinds of rocks on the			
	natural materials.			basis of their			
	Explore collections			appearance and			
	of materials with			simple physical			
	similar and/or			properties			
	different						
	properties.			describe in simple			
	Talk about the			terms how fossils are			
	differences			formed when things			
	between materials.			that have lived are			
				trapped within rock			
				recognise that soils			
				are made from rocks			
				and organic matter			
KEY	Hard, Smooth,			Fossils, Soils,			
Vocabulary	Rough, Fossil			Sandstone, Granite,			
				Marble, Pumice,			
				Crystals, Absorbent			
Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light	Explore the			recognise that they			recognise that light
	natural world			need light in order to			appears to travel in
	around them.			see things and that			straight lines
	Describe what			dark is the absence of			
	they see, hear and			light			use the idea that light
	feel whilst outside.						travels in straight
	Explore how			notice that light is			lines to explain that
	shadows are made.			reflected from			objects are seen
	Recognise			surfaces			because they give out
	different sources						or reflect light into
	of light.			recognise that light			the eye
				from the sun can be			

	Comparisons of light/dark.			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.			explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
KEY	Bright, Dark,			Light, Shadow,			
Vocabulary	Shadow,			Mirror, reflection,			
Area of	nocturnal, diurnal Foundation	Year 1	Year 2	Dark, Reflective Year 3	Year 4	Year 5	Year 6
study	roundation			ieai 5		Teal J	rear o
Forces and	Explore and talk			compare how things		explain that	
Magnets	about different			move on different		unsupported objects	
	forces they can			surfaces		fall towards the	
	feel.					Earth because of the	
				notice that some		force of gravity	
				forces need contact		acting between the	
				between 2 objects,		Earth and the falling	
				but magnetic forces		object	
				can act at a distance			
						identify the effects	
				observe how magnets		of air resistance,	
				attract or repel each		water resistance and	
				other and attract		friction, that act	
				some materials and		between moving	
				not others		surfaces	
				compare and group		recognise that some	
				together a variety of		mechanisms	
				everyday materials on		including levers,	
				the basis of whether		pulleys and gears	
						pulleys and gears	

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				they are attracted to		allow a smaller force	
				a magnet, and		to have a greater	
				identify some		effect	
				magnetic materials			
				describe magnets as			
				having 2 poles			
				n un diet wie ath au 2			
				predict whether 2 magnets will attract			
				-			
				or repel each other,			
				depending on which poles are facing.			
KEY	Stop, Start, Push,			Magnetic Force,		Air Resistance,	
Vocabulary	Pull, Float, Sink,			Contact, Attract,		Water, Resistance,	
vocabulary	Gravity			Repel, Friction, Poles,		Friction, Gravity,	
	Gravity			Push, Pull		Newton, Gears,	
				r ush, r uh		Pulleys	
Area of	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
study	roundation			i cai s		i cai 5	i cai o
Properties	Use all their senses				compare and group	compare and group	
and	in hands on				materials together,	together everyday	
changes of	exploration of				according to whether	materials on the	
materials	natural materials.				they are solids, liquids	basis of their	
	Explore collections				or gases	properties, including	
	of materials with					their hardness,	
	similar and/or				observe that some	solubility,	
	different				materials change	transparency,	
					state when they are	conductivity	
	properties.				heated or cooled, and	(electrical and	
	Talk about the				measure or research	thermal), and	
	differences				the temperature at	response to magnets	
	between materials				which this happens in		
	and changes they				degrees Celsius (°C)	know that some	
						materials will	
1	notice.						
	notice. Understand some				identify the part	dissolve in liquid to	
					played by evaporation	dissolve in liquid to form a solution, and	
	Understand some					dissolve in liquid to	

natural world		associate the rate of	recover a substance	
around them,		evaporation with	from a solution	
including changing		temperature		
states of matter			use knowledge of	
such as how to			solids, liquids and	
change water from			gases to decide how	
a liquid to a solid.			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	
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KEY Vocabulary	Hard, Soft, Water, Hot, Cold, Ice, Meting, Boiling, Freeze, Solid, Liquid				Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating	Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing	
Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound	Use all their senses in hands on exploration of the world around them. Talk about what they can see and hear using a wide vocabulary. Explore different sounds and how they can be changed.				 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 		

KEY Vocabulary	Quiet, Loud, Volume				Volume, Vibration, Wave, Pitch, Tone		
Area of Study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity	Talk about the				identify common		associate the
	differences				appliances that run		brightness of a lamp
	between materials				on electricity		or the volume of a
	and changes they						buzzer with the
	notice.				construct a simple		number and voltage
					series electrical		of cells used in the
					circuit, identifying and		circuit
					naming its basic parts,		
					including cells, wires,		compare and give
					bulbs, switches and		reasons for variations
					buzzers		in how components
							function, including
					identify whether or		the brightness of
					not a lamp will light in		bulbs, the loudness of
					a simple series circuit,		buzzers and the
					based on whether or		on/off position of
					not the lamp is part of		switches
					a complete loop with		
					a battery		use recognised
							symbols when
					recognise that a		representing a simple
					switch opens and		circuit in a diagram
					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		

KEY Vocabulary	Bright, Dark, battery, bulb.				Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators		Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts
Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and Space	Recognise some environments that are different to the one in which they live. Know some similarities and differences between the natural world around them and contrasting environments.					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	
KEY	The World, Sky,					sky. Earth, Sun, Moon,	
Vocabulary	Space, Stars, Planet names, moon, sun, land, sea.					Axis, Rotation, Day, Night, Phases of the Moon, Star, Constellation, Solar System, Names of Planets	

Area of study	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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.
KEY Vocabulary							Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics