Science Subject Overview

The Bishops' C of E Learning Academy

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.

Last updated September 2025 – Charlotte Dolbear

Curriculum Intent, Implementation and Impact Overview		
Subject: Science	**Subject Leader:** Charlotte Dolbear	
Intent	**Implementation**	**Impact**
To ensure all children : • Develop an understanding of the world around them. • Are able to become enquiry based learners. • Understand different areas of scientific enquiry and their uses. • Cover the key aspects of the science national curriculum in engaging, immersive topics. • Receive high quality science lessons, taught by confident teachers. • Are given a range of learning experience which results in the acquisition of knowledge.	**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.* **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 technology, practical investigations and photographic equipment** *Children will use a range of secondary resources to develop their knowledge and understanding that is integral to their learning. Resources are checked to ensure they are suitable, appropriate and useful.* **Children will reflect on previous learning and cross curricula links will be made through 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.* **Educational Visits** *Where applicable links to Science will be made to develop the children's topical learning.* **British Values and PSHE** *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 effectively. Links with the Ogden Trust to develop teaching of Physics across the school.	Enthusiastic, excited and curious children who are able to communicate their understanding of the world in a scientific way. Children will achieve age related expectations in Science at the end of their cohort year. 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. Children will be able to question ideas and reflect on knowledge. Children will work collaboratively and practically to investigate and experiment. Children will be able to explain the process they have taken and be able to reason scientifically.

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 prompted setting up simple practical enquiries, comparative and fair tests making systematic observations using simple equipment With prompting, use various ways of recording, grouping and displaying evidence suggest how findings could be reported with prompting, suggest conclusions from enquiries identifying 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 observations of the natural world around them. 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.	observe and describe weather associated with the seasons and how day length varies					
KEY Vocabulary	**Weather, rain, sunshine, snow, cloud, frost, day, night, autumn, spring, summer, winter, hibernation , autumnal changes**	**Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark**					
Area of study	**Foundation**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Living things and their habitats	***Use all their senses in hands on exploration of natural materials. Understand the key features of the life cycle of a plant and an animal.***		explore and compare the differences between things that are living, dead, and things that have never been alive		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	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	describe how living things are classified into broad groups according to common observable characteristics and based on similarities 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 name different sources of food		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, Camouflage, Minibeast, Insects, Predator, Prey, Carnivore, Herbivore**		**Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert**		**Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats**	**Mammal, Reproduction, Insect, Amphibian, Bird, Offspring**	**Classification, Vertebrates, 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 in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about the differences between materials.			compare and group together different kinds of rocks on the basis of their appearance and simple physical properties 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			
KEY Vocabulary	**Hard, Smooth, Rough, Fossil**			**Fossils, Soils, 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 natural world around them. Describe what they see, hear and feel whilst outside.*** Explore how shadows are made. ***Recognise different sources of light.***			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			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

	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 Vocabulary	**Bright, Dark, Shadow, nocturnal, diurnal**			**Light, Shadow, Mirror, reflection, Dark, Reflective**			
Area of study	**Foundation**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Forces and Magnets	Explore and talk about different forces they can feel.			compare how things move on different surfaces notice that some forces need contact between 2 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		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	

				they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing.		allow a smaller force to have a greater effect	
KEY Vocabulary	**Stop, Start, Push, Pull, Float, Sink, Gravity**			**Magnetic Force, Contact, Attract, Repel, Friction, Poles, Push, Pull**		**Air Resistance, Water, Resistance, Friction, Gravity, Newton, Gears, Pulleys**	
Area of study	**Foundation**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Properties and changes of 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. **Understand some important processes and changes in the**				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	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	

	natural world around them, including changing states of matter such as how to change water from a liquid to a solid.				associate the rate of evaporation with temperature	recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	

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 differences between materials and changes they notice.				identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors		associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram

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 sky.	
KEY Vocabulary	**The World, Sky, Space, Stars, Planet names, moon, sun, land, sea.**					**Earth, Sun, Moon, 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**