



'Life in all its fullness'
John 10:10

Science at Christ Church School

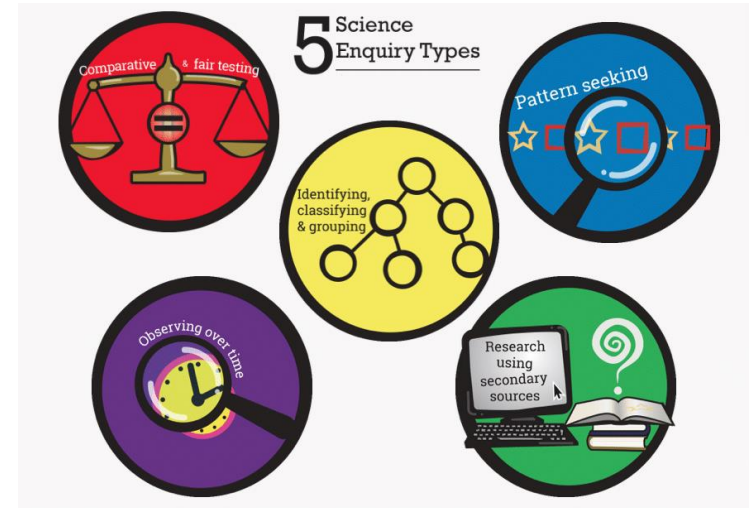
We use Rising Stars and STEM learning to ensure our children have access to a broad and exciting science curriculum. At Christ Church School we know that science education provides the foundations for understanding the world in which we live. We believe that science lessons should stimulate children's curiosity and imagination and inspire them to want to find out more and this is done through scientific enquiry.

Scientific enquiry describes the processes and skills that pupils are taught to find out more about the world and how it works and is embedded into each topic of work. In science lessons, children will learn how to research, using primary and secondary sources and how to identify, classify and group organic and man-made things. They will learn to design investigations using comparative and fair testing, seek patterns and carry out observations over time. The National Curriculum which describes how children will develop their scientific enquiry skills as they move through the key stages.

We want all pupils to develop the scientific knowledge and conceptual understanding required to understand the uses and implications of science, today and for the future.

SEND

Scientific enquiry is a good way to engage children with SEND, as it is usually active, creative or practical. However some children require additional support and we do this through modelling and high quality questioning. We also use videos, pictures and diagrams which can support visual learners, and we provide word mats and glossaries to support the use of scientific vocabulary. Some children benefit from pre-teaching of concepts, or additional opportunities to discuss what they have been doing. Visuals and vocabulary are also included on wall displays which supports retrieval between lessons.











Curriculum Links










DT – Electricity in Classes 4 and 5
Geography – Water cycle in Class 4 (local studies)













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NC	Key Stage 1			
	<p>Working Scientifically in years 1 and 2:</p> <ul style="list-style-type: none"> • 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 			
Year 1	<p>Animals, Including Humans </p> <ul style="list-style-type: none"> • 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) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	<p>Seasonal Changes </p> <ul style="list-style-type: none"> • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies 	<p>Everyday Materials </p> <ul style="list-style-type: none"> • 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 	<p>Plants </p> <ul style="list-style-type: none"> • 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
Year 2	<p>Animals, Including Humans </p> <ul style="list-style-type: none"> • notice that animals, including humans, have offspring which grow into adults • 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 	<p>Living Things and their Habitats </p> <ul style="list-style-type: none"> • explore and compare the differences between things that are living, dead, and things that have never been alive • 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 	<p>Uses of Everyday Materials </p> <ul style="list-style-type: none"> • 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 	<p>Plants </p> <ul style="list-style-type: none"> • 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



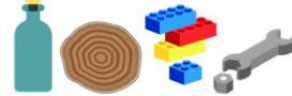




NC	Lower Stage 2				
Working Scientifically in years 3 and 4:	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, 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, 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 				
Year 3	<p>Animals, Including Humans</p>  <ul style="list-style-type: none"> 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 	<p>Light</p>  <ul style="list-style-type: none"> 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 	<p>Rocks</p>  <ul style="list-style-type: none"> 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 	<p>Forces and Magnets</p>  <ul style="list-style-type: none"> 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 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 	<p>Plants</p>  <ul style="list-style-type: none"> 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
	Year 4	<p>Animals, Including Humans</p>  <ul style="list-style-type: none"> 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 	<p>Living Things and their Habitats</p>  <ul style="list-style-type: none"> 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 	<p>Sound</p>  <ul style="list-style-type: none"> 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 	<p>States of Matter</p>  <ul style="list-style-type: none"> 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









NC	Upper Key Stage 2				
	<p>Working Scientifically in years 5 and 6:</p> <ul style="list-style-type: none"> 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 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 				
Year 5	<p>Animals, Including Humans</p>  <ul style="list-style-type: none"> describe the changes as humans develop to old age 	<p>Living Things and their Habitats</p>  <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals 	<p>Properties and changes of materials</p>  <ul style="list-style-type: none"> 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 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 	<p>Forces</p>  <ul style="list-style-type: none"> 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 	<p>Earth and Space</p>  <ul style="list-style-type: none"> 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
Year 6	<p>Animals, Including Humans</p>  <ul style="list-style-type: none"> 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 describe the ways in which nutrients and water are transported within animals, including humans 	<p>Living Things and their Habitats</p>  <ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics 	<p>Evolution and Inheritance</p>  <ul style="list-style-type: none"> 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 	<p>Light</p>  <ul style="list-style-type: none"> 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 	<p>Electricity</p>  <ul style="list-style-type: none"> 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








1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Topic	Animals, Including Humans 	Seasonal Changes 	Everyday Materials 	Animals, Including Humans 	Individual science topic or retrieval practice	Plants 	
Overview	Children identify the body parts associated with the different senses through experiences and investigations.	Children observe the 4 seasons and describe the weather and length of day associated with them.	Children learn to distinguish between objects and the materials they are made from. they begin to describe and compare properties of materials.	Children identify different animals and begin to compare them.		Children identify a range of plants and trees and describe their basic structure.	
Year A 2022/23	Rising Stars (1) 1.2/1.2 Who am I?	Rising Stars (1) p81-92 Seasonal change STEM Season Spotters	STEM (SharePoint) Materials Rising Stars (1) 3.1 Polar Places (+ seasonal change)	Rising Stars (1) 5.1/5.2 On Safari STEM Nocturnal animals (+ seasonal change)		STEM Parts of a Plant and Their Functions (+ seasonal change)	
Year B 2023/24	STEM Ourselves	Rising Stars (1) p81-92 Seasonal change STEM Season Spotters	Rising Stars (1) 6.1, 6.2, 6.3, 6.6 Holiday (+ seasonal change)	Rising Stars (1) 4.2 (Plants and animals) Birds and Animals STEM Classification activities (+ seasonal change)		Rising Stars (1) 4.1 (Plants and animals) Our Local Area STEM Plant spotters (+ seasonal change)	
Vocabulary	smell touch taste see hear senses	observe record winter spring summer autumn	materials properties sort compare	invertebrates carnivores minibeasts herbivore bugs omnivore birds mammal animal	habitat fish	plants flowers roots leaves stem petal	trees trunk bark deciduous evergreen



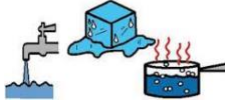





2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Animals, Including Humans 	Seasonal Changes 	(Uses of) Everyday Materials 	Animals, Including Humans 	Living Things and their Habitats 	Plants 
Overview	Children find out about the basic needs of humans and animals that are important for survival.	Children observe the 4 seasons and describe the weather and length of day associated with them.	Children learn to distinguish between objects and the materials they are made from. they begin to describe and compare properties of materials.	Children identify and compare a greater range of animals. They notice that animals have offspring that grow into adults.	Children find out about things that are alive, where they live and learn about simple food chains.	Children identify a wider range of plants and trees and describe their basic structure. They observe plants growing from seeds or bulbs and find out what they need to grow and thrive.
Year A 2022/23	Rising Stars (2) 1.1, 1.2, 1.3 Healthy Me	Rising Stars (1) p81-92 Seasonal change STEM Wonderful Weather	Rising Stars (2) 2.1, 2.2 Materials Monster	Rising Stars (1) 5.1/5.2 On Safari Life cycle of a frog	Rising Stars (2) 4.1, 4.2, 4.3 Our local environment	Rising Stars (2) 5.1 Young Gardeners Salads and bulbs
Year B 2023/24	STEM Brilliant Bodies Rising Stars (2) 6.1, 6.2 Become a Masterchef	Rising Stars (1) p81-92 Seasonal change STEM Wonderful Weather	STEM Let's Build	Rising Stars (1) 4.2 Birds and Animals Egg Hatching Kit	TBC	Rising Stars (2) 5.1 Young Gardeners Germinating and growing
Vocabulary	survival water food air exercise hygiene	observe months record seasons winter year spring weather summer autumn	materials properties compare sort	fish carnivores amphibians herbivores reptiles omnivores birds mammals offspring	living dead inanimate habitats microhabitats food chain	plants trees flowers trunk roots bark leaves deciduous stem evergreen petal bulbs temperature seeds



3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Animals, Including Humans 	Light 	Rocks 	Forces and Magnets 	Individual science topic or retrieval practice	Plants 
Overview	Children learn about nutrition that animals and humans need to be healthy. They consider why some animals and humans have skeletons and muscles.	Children recognise that dark is the absence of light. They find out about different light sources. They investigate shadow.	Children examine the appearance and properties of different rocks. They learn how fossils are formed and that rocks are made of organic matter.	Children investigate how things move on different surfaces. They observe how magnets attract some materials and not others.		Children observe plants growing from seeds or bulbs. They find out about the functions of the different parts, how water is transported within plants and pollination.
Year A 2022/23	Rising Stars (3) 2.2, 2.3, 2.4 Bones, skeletons, muscles and joints	Rising Stars (3) 3.1, 3.2 Light and Shadows	STEM Rocks and fossils	Rising Stars (3) 5.1, 5.2 Forces and Magnets		STEM Plants: Roots and Shoots
Year B 2023/24	STEM Animals, Including Humans (3)	TBC	Rising Stars (3) 1.1, 1.2, 1.3 Rocks, soils and fossils	STEM Magnetic fun and games		Rising Stars (3) 4.1, 4.2, 4.3 How does your garden grow?
Vocabulary	nutrition skeletons muscles protection movement support	dark shadow source reflection protection	appearance properties fossils formation organic matter	friction magnetic attract repel poles		roots leaves stem pollination petal nutrients transportation seed formation



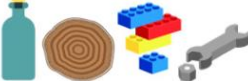


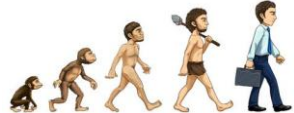


4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Animals, Including Humans 	Sound (Year 4) 	States of Matter 	Forces 	Living Things and their Habitats 	Earth and Space 
Overview	Children learn about the digestive system in humans, teeth and their different functions and continue to learn about food chains. They begin to describe some of the changes in humans from birth to old age.	Children learn how sounds are associated with vibrations that travel through the ear. They investigate patterns in relation to pitch and volume depending on what is making the sound and where it is.	Children explore the states of solid, liquid and gas. They observe changes to these states through experimentation. They learn about the water cycle.	Children learn about gravity, air resistance, water resistance and friction through experimentation and observation.	Children use classification keys identify animals in their local and wider environment. They look how environments change over time and the impact of this. They learn about life cycles of some animals.	Children learn about the movement of the earth and other planets in relation to the sun. They learn about the movement of the moon. They understand why the sun appears to rise and set each day.
Year A 2022/23	Rising Stars (4) 4.1, 4.2, 4.3 Teeth and eating Producers, Predators and Prey	Rising Stars (4) 1.1, 1.2 What's that sound?	STEM Solids, Liquids and Gases Melting experiment Water Cycle	Rising Stars (5) 4.1, 4.2, 4.3 Forces of Nature	Rising Stars (5) 3.1, 3.2, 3.3 Circle of Life	STEM Space Presenters
Year B 2023/24	STEM Animals, Including Humans (4)	STEM Music to the ears	Rising Stars (4) 3.1, 3.2, 3.3 Looking at States	STEM Feel the force Planes, rockets and automobiles	Rising Stars (4) 2.1, 2.2, 2.3 Living Things	Rising Stars (5) 1.1, 1.2, 1.3 Out of this world
Vocabulary	digestion teeth molar incisor predator prey baby infant child adolescent adult old age	vibration medium ear canal pitch volume proximity	solid liquid vapour evaporation condensation states gas melt Celsius	gravity friction force resistance	classification identification environment	orbit solar system spherical rotation sunrise sunset

* Electricity (year 4) is taught alongside DT in the summer term every year





5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Topic	Animals, Including Humans 	Light 	Properties and changes of materials 	Electricity 	Living Things and their Habitats 	Evolution and Inheritance 	
Overview	Children learn about the circulatory system and how it works. They find out how water and nutrients are transported and absorbed within animals, including humans.	Children recognise that light travels in straight lines and can be reflected from surfaces. They find out light travels to objects and then our eyes, enabling us to see them. They deepen their understanding of shadow.	Children compare and group together everyday materials on the basis of their properties. They separate mixtures using filtering, sieving and evaporation. They demonstrate dissolving. they understand that some changes are not reversible.	Children build on their work on circuits in DT. They investigate voltage of cells and the variations in brightness and volume. They understand switches. they can represent a circuit in a diagram.	Children deepen their understanding and use of classification keys. They classify animals according to their observable characteristics.	Children recognise that things have changed over time and how animals and humans have adapted in different ways. They look at how offspring have characteristics of their parents but are not identical to them.	
Year A 2022/23	STEM The Human Species – Interactive: https://thehumanbodygame.co.uk/	Rising Stars (6) 4.1, 4.2, 4.3 Light	Rising Stars (6) 2.1, 2.2 Material World	STEM Electricity	STEM Class Connoisseurs	Rising Stars (6) 3.1, 3.2, 3.3 Evolution and Inheritance	
Year B 2023/24	Rising Stars (6) 2.1, 2.2, 2.3 Healthy Bodies	STEM Light crime lab investigations and Shadow Puppets	STEM Properties and Changes of Materials experiments	Rising Stars (6) 5.1, 5.2, 5.3 Electricity	Rising Stars (6) 1.1, 1.2, Classifying Living Things	STEM Survival of the Fittest	
Vocabulary	circulatory system heart blood vessels function	reflection light sources vision rays	solubility transparency conductivity electrical thermal insulate	dissolve separate filter evaporate reversible irreversible	voltage cells brightness volume switches diagram	reproduction observable characteristics	evolution adaptation inheritance characteristics offspring