Science Curriculum Overview

Intent:

At **St Francis CE Primary School**, our Science curriculum is rooted in our Christian vision that **"Every person matters, every person helps, every person succeeds,"** enabling all children to **live life in all its fullness** (John 10:10).
Our intent is to nurture children's natural curiosity and wonder about the world God created, enabling them to develop a secure understanding of **scientific knowledge, enquiry skills, and working scientifically**. Using the **Developing Experts** scheme to support high-quality implementation, we ensure that science learning is progressive, engaging, and rooted in enquiry and exploration.
Through science, pupils learn to ask questions, plan and carry out investigations, observe closely, collect and interpret data, and draw conclusions. The curriculum builds knowledge over time across biology, chemistry, and physics, while developing scientific vocabulary and reasoning. Links to real-life contexts help children understand the relevance and importance of science in everyday life and future careers.
Science at St Francis actively promotes our Christian values:

- **Courage** – asking questions, investigating ideas, and persevering with enquiry
- **Peace** – working safely, responsibly, and respectfully with others and the environment
- **Thankfulness** – appreciating the natural world and scientific discovery
- **Trust** – using evidence and observation to develop understanding
- **Friendship** – collaborating during investigations and sharing ideas
- **Hope** – inspiring curiosity, aspiration, and care for the future of our world

Our intent is that all pupils leave St Francis CE Primary School with a **strong scientific foundation**, curiosity about the world, and the skills to think critically, investigate independently, and engage confidently with science in their future education, supporting them to **live life in all its fullness**.

Implementation: Early Years

In the Early Years at **St Francis CE Primary School**, the impact of Science is seen in children who are curious, observant, and eager to explore the world around them. Science learning supports the **EYFS framework** and aligns with **Development Matters**, particularly in **Understanding the World – The Natural World**.

Children explore their environment through play, outdoor learning, and hands-on experiences. They observe plants and animals, investigate materials, notice changes, and ask questions about how things work. Adults support children to develop early enquiry skills, vocabulary, and an understanding of cause and effect. Through science, children demonstrate **courage** in exploring and asking questions, **friendship** and **trust** when investigating together, and **peace** through care for living things and their environment. A sense of **thankfulness** and **hope** is nurtured as children appreciate the natural world and begin to understand their role in caring for it.

By the end of the Early Years, children have developed a secure foundation in **scientific curiosity, observation, and exploration**, preparing them to build on this learning in Key Stage 1 and beyond, supporting them to **live life in all its fullness**.

Implementation:

Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Animals, including humans**	**Exploring everyday materials**	**Exploring materials**	**Animals including humans – all about animals**	**Seasonal Changes**	**Plants**
Year 2	**Animals including humans – Life cycles**	**Animals including humans – growth**	**Plants**	**Uses of everyday materials**	**Living things and their habitats – Habitats around the world**	**Living things and their habitats**
Year 3	**Rocks**	**Light**	**Animals including humans**	**Forces – speed of an object**	**Forces - Magnets**	**Flowering Plants**
Year 4	**Sound**	**Electricity**	**States of Matter**	**Teeth and the Digestive System**	**Classifying plants and animals**	**Habitats**
Year 5	**Properties of materials**	**Forces**	**Living things and their habitats**	**Animals including humans**	**Earth and Space**	**Changes of materials**
Year 6	**Animals including humans – circulatory system.**	**Living things and their habitats**	**Light**	**Looking after our environment**	**Evolution and inheritance**	**Electricity**

Progression Map

Developing Experts – Progression of Knowledge Document

Unit	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
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) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	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	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	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	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 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
Living things and their habitats		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,		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	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	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

		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		pose dangers to living things		
Plants	Identify and name a variety of common and wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees	Observe and describe how seeds and bulbs into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	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			

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
Materials	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			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	
Seasonal changes	Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies					
Rocks			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			
States of matter				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		
Earth and space					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	
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 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			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
Forces			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		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	

			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		allow a smaller force to have a greater effect	
Electricity				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 conductor		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

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		

Impact:

At **St Francis CE Primary School**, the impact of our Science curriculum is seen in confident, curious pupils who enjoy exploring and understanding the world around them. Through the **Developing Experts** scheme, pupils make strong progress in scientific knowledge, enquiry skills, and vocabulary as they move through the school.

Children can articulate scientific concepts clearly, use appropriate terminology, and apply their understanding to explain phenomena and outcomes of investigations. Pupils demonstrate secure skills in **working scientifically**, including observing, questioning, testing, recording, and evaluating. They are able to use evidence to support conclusions and reflect on their learning.

Our Christian values are evident in pupils' scientific learning and attitudes:

- **Courage** in investigation and questioning
- **Peace** through safe, respectful, and responsible scientific practice
- **Thankfulness** for the natural world and scientific advancement
- **Trust** in evidence, processes, and collaborative enquiry
- **Friendship** through teamwork and shared investigation
- **Hope** through curiosity, innovation, and care for the future

Science contributes significantly to pupils' **spiritual, moral, social, and cultural development**, encouraging awe and wonder, environmental responsibility, and ethical consideration.

By the time pupils leave St Francis CE Primary School, they have developed the **knowledge, skills, and confidence** to engage with science thoughtfully and independently, to apply their learning across the curriculum, and to continue scientific enquiry in secondary education and beyond, fully prepared to **live life in all its fullness**.