Science - Programme of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils will be encouraged to recognise the power of rational explanation as well as developing a sense of excitement and curiosity about natural phenomena. They will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

The national curriculum for science aims to ensure that all pupils:

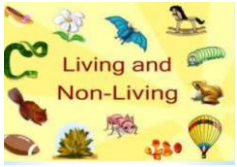
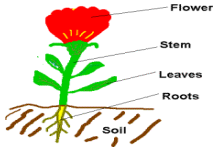
* Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
* Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
* Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

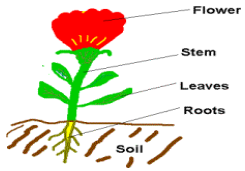
Cycle A	Science Overview 2020-2021					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Animals including Humans	Seasonal Changes	Materials	Animals including Humans	Plants	Scientific Enquiry
Year 2 Year 2/ 3	Animals including Humans	Animals including Human	Everyday Materials	Everyday Materials	Plants	Living things and their Habitat
Year 3/4 Year 4	Animals including Humans	Rocks, Soils & Fossils	Forces & Magnets	Sound	Plants	Scientific Enquiry
Year 5 Year 5/6 Year 6	Animals including Humans	Properties of Materials	Forces	Evolution & Inheritance	Living Things includes plants	Scientific Enquiry

Key Stage 1 – Working scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

* 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.

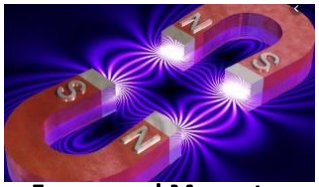
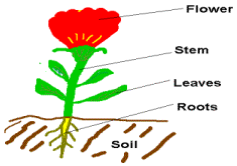
Curriculum Overview 2020 /2021- **Key Stage 1**						
Science at Corpus Christi Catholic Primary						
	Autumn 1  **Who am I?**	**Autumn 2**  **Polar Places**	**Spring 1**  **Celebrations**	**Spring 2**  **On Safari**	**Summer 1**  **Plants & Animals**	**Summer 2**  **Scientific Enquiry** **Holidays**
Year 1	* Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	* Observe changes across the four seasons * Observe and describe weather associated with the seasons and how day length varies.	* 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 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 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.	* Ask simple questions and recognising that they can be answered in different ways * Observe closely, using simple equipment * Perform simple tests * Identify and classify * Use their observations and ideas to suggest answers to questions * Gather and record data to help in answering questions.

	Autumn Term	Spring Term	Summer 1	Summer 2	Coverage throughout year
	 **Healthy Me & Master chefs**	 **Material Monsters**	 **Young Gardeners**	 **Our Local Area**	 **Scientific Enquiry**
Year 2 **&** **Year 2/3**	* 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 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.	* 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.	* 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.	* Ask simple questions and recognising that they can be answered in different ways * Observe closely, using simple equipment * Perform simple tests * Identify and classify * Use their observations and ideas to suggest answers to questions * Gather and record data to help in answering questions.

Lower Key Stage Two -Working Scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

* 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.

Curriculum Overview 2020/2021- **Lower Key Stage 2**						
Science at Corpus Christi Catholic Primary						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	 **Food and Our Body**	 **Rocks, Soils & Fossils**	 **Forces and Magnets**	 **What's that sound?**	 **How does your garden grow?**	 **The Nappy Challenge Scientific Enquiry**
Year 3/4 & Year 4	* 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.	* 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.	* Compare how things move on different surfaces * Notice that some forces need contact between two objects, but magnetic forces can act at a distance * Observe how magnets attract or repel each other and attract some materials and not others * Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials * Describe magnets as having two poles * Predict whether two magnets will attract or repel each other,	* 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	* 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	* Ask relevant questions and using different types of scientific enquiries to answer them * Set up simple practical enquiries, comparative and fair tests * Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

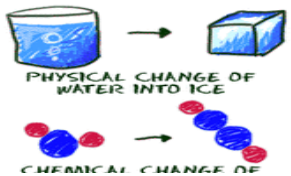
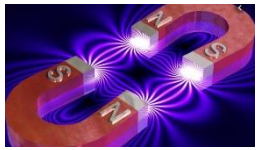
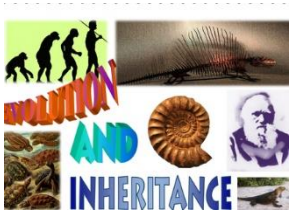
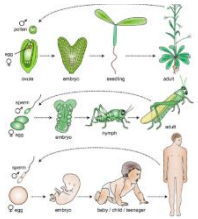
			depending on which poles are facing.	* Recognise that sounds get fainter as the distance from the sound source increases.	transported within plants * Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	* Gather, record, classify and present data in a variety of ways to help in answering questions * Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables * Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions * Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions * Identify differences, similarities or changes related to

						simple scientific ideas and processes * Use straightforward scientific evidence to answer questions or to support their findings.

Upper Key Stage two - Working Scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

* 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 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

Curriculum Overview 2020/2021- **Upper Key Stage 2**						
Science at Corpus Christi Catholic Primary						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
						
	Healthy Bodies	**Material World**	**Let's get moving**	**Evolution and inheritance**	**Circle of Life**	**Amazing Changes Scientific Enquiry**
Year 5 **Year 5/6** **&** **Year 6**	* 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	* 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,	* 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	* 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	* 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.	* Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

	within animals, including humans.	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.	force to have a greater effect.	adaptation may lead to evolution.		* Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs * Use test results to make predictions to set up further comparative and fair tests * Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations * Identify scientific evidence that has been used to

						support or refute ideas or arguments