St. Edward's Catholic Primary School

Science Overview

	Throughout the year	Autumn A	Autumn B	Spring A	Spring B	Summer A	Summer B
Year 1	Working scientifically	The Human Body	Animals and their Needs	Seasons and the weather	Taking care of the Earth	Plants	Materials and Magnets
	• 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.	• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	• 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. • Can they begin to classify animals according to a number of given criteria? • Can they point out differences between living things and non-living things? • Can they begin to classify animals according to a number of given criteria? • Can they point out differences between living things and non-living things?	• observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies.	• describe different ways we can take care of the Earth. • know that there are natural and manufactured resources that people on Earth use. • identify logging as a way of harvesting the Earth's natural resources. • know that people create pollution which can harm the environment • know that recycling means turning used things into something new.	• 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 • Can they name the main parts of a flowering plant? • Can they sort some plants by those that can be eaten and those that cannot? • Can they sort some animals on a simple branching diagram with features such as meat eaters and non meat eaters; swim and cannot swim?	• 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 • 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 • Can they describe things that are similar and different between materials? • Can they explain what happens to certain materials when they are heated, eg, bread, ice, chocolate?

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							• Can they explain what happens to certain materials when they are cooled, eg, jelly, heated chocolate??
Year 2	Working scientifically	The Human Body	Living things in their environments	Electricity	Plants	Materials and matter	Astronomy
	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.	• 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. • Can they name some characteristics of an animal that help it to live in a particular habitat? • Can they describe what animals need to survive and link this to their habitats? • Can they explain that animals reproduce in different ways?	• 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. Can they classify living things into groups according to a range of criteria they have been given?	• identify things that use electricity. • know that electricity is useful, but it can also be dangerous construct an electrical circuit. identify materials that conduct electricity.	• 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. • Can they describe what plants need to survive and link it to where they are found? • Can they explain that plants grow and reproduce in different ways?	• 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. • Can they explain how materials are changed by heating and cooling? • Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted? • Can they explain how materials are changed by bending, twisting and stretching?	• know there are eight planets in our solar system. • know that Earth travels around the sun. • know that the moon orbits the earth. • know that groups of stars are called constellations. • understand that Scientists, including astronomers, learn from each other to make new discoveries about space
Year 3	Working scientifically	The Human Body	Cycles in Nature	Light	Plants	Rocks	Forces and Magnets
	Asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests	• identify that humans and some other animals have skeletons and muscles for support, protection and movement. • identify that animals, including humans, need the right types and amount	• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers (NC Yr3) • explore the part that flowers play in the life cycle of flowering plants,	• 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	• 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,	• 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	• 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

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	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.	of nutrition, and that they cannot make their own food; they get nutrition from what they eat	including pollination, seed formation and seed dispersal (NC Yr3)	and that there are ways to protect their eyes	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. • Can they explain their findings in different ways (display, presentation, writing)? • Can they use their findings to draw a simple conclusion? • Can they record and present what they have found using scientific language, drawings, labeled diagrams, bar charts and tables? • Can they classify a range of common plants according to many criteria (environment found, size, climate required, etc.)? • Can they explore the role of flowers in the life cycle of flowering plants. Including pollination, seed formation and seed dispersal?	when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter. • Can they classify igneous and sedimentary rocks? • Can they begin to relate the properties of rocks with their uses?	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, depending on which poles are facing.
Year 4	Working scientifically	The Human Body	Classification of Plants and Animals	Ecology	Sound	States of Matter and the Water Cycle	Electricity

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	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.	• 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. • Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models? • Can they report findings from investigations through written explanations and conclusions? • Can they use a graph or diagram to answer scientific questions?	• Recognise that living things can be grouped in a variety of ways (NC Yr4) • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment (NC Yr4)	• recognise that environments can change and that this can sometimes pose dangers to living things. • construct and interpret a variety of food chains, identifying producers, predators and prey.	• 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. • Can they explain why sound gets fainter or louder according to the distance? • Can they explain how pitch and volume can be changed in a variety of ways? • Can they work out which materials give the best insulation for sound?	• 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.	• 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
Year 5	Working scientifically	The Human Body	• Materials	• Living Things	Forces	Astronomy	• Meteorology
	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	• describe the changes as humans develop to old age. • Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies?	• 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	• 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.	• 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	• 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	• know the atmosphere protects Earth and enables life • know that human actions can impact the Earth's atmosphere • know that the UK experiences six air masses affecting the weather

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	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.		• 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. • Can they describe methods for separating mixtures? (filtration, distillation) • Can they work out which materials are most effective for keeping us warm or for keeping something cold?	• Can they observe their local environment and draw conclusions about life-cycles? (for example, the vegetable garden or plants in a shrubbery) • Can they compare the life cycles of plants and animals in their local environment with the life cycles of those around the world, eg rainforests?	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. • Can they describe and explain how motion is affected by forces? (including gravitational attractions, magnetic attraction and friction) • Can they design very effective parachutes? • Can they work out how water can cause resistance to floating objects?	• 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. • Can they compare the time of day at different places on the Earth? • Can they create shadow clocks? • Can they begin to understand how older civilizations used the Sun to create astronomical clocks? • Can they explore the work of some space pioneers? (Galileo, Copernicus, Neil Armstrong)	• know thunder and lightning is caused by electrical charge moving through the air.
Year 6	Working scientifically	The Human Body	Classification of Living things	Electricity	Light	Reproduction	Evolution
	Recall and use appropriately terminology such as accurate, conclusion, evidence, fair test, method, observe, pattern, prediction, reliable, results,	• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels	• describe how living things are classified into broad groups according to common observable characteristics and based	• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	• recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to	• describe the life process of reproduction in some plants and animals • know that asexual reproduction does not	• recognise that living things have changed over time and that fossils provide information about living

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	supports (evidence) and variable For a given task they can identify the most appropriate approach for answering scientific questions and select the most appropriate equipment and sources of evidence needed for a task Plan different types of scientific enquiry, make careful observations, take accurate measurements or readings using the appropriate units as required and identify when to repeat measurements, if necessary, to ensure given results are reliable Record, present and interpret data from different sources, using a range of methods, including tables, graphs (bar charts and line graphs), diagrams and keys Apply their understanding of scientific concepts to draw valid conclusions from data Use data to make predictions for missing values Identify or use evidence to support or refute ideas or arguments Recognise the validity and reliability of evidence and the difference between fact and opinion.	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. ● Can they explore the work of medical pioneers, for example, William Harvey and Galen and recognise how much we have learnt about our bodies? ● Can they compare the organ systems of humans to other animals? ● Can they make a diagram of the human body and explain how different parts work and depend on one another?	on similarities and differences, including microorganisms, plants and animals ● give reasons for classifying plants and animals based on specific characteristics. ● Can they explain why classification is important? ● Can they readily group animals into reptiles, fish, amphibians, birds and mammals?	● 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. ● Can they make their own traffic light system or something similar? ● Can they explain the danger of short circuits? ● Can they explain what a fuse is?	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. ● Can they use the ray model to explain the size of shadows?	require male and female cells. ● understand sexual reproduction in flowering plants. ● know that many plants clothe their seeds with fruit. ● understand sexual reproduction in animals. ● know that different animals have different growth stages.	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. ● Can they explain how some living things adapt to survive in extreme conditions? ● Can they analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet? ● Can they begin to understand what is meant by DNA?