



Science – progression in knowledge and skills

Science Curriculum Overview						
Rationale	<ul style="list-style-type: none"> At St Augustine of Canterbury, we believe that through science, pupils will continue to deepen their respect, care and appreciation for God’s natural world and all its phenomena. Scientific questions, exploration and experiences will encourage pupils to begin to appreciate the way in which Science will affect their lives and futures on a personal, national, and global level 					
Approach	<ul style="list-style-type: none"> To build understanding progressively through a well planned and executed curriculum. Use relevant contexts, diverse Scientists and role models to value the impact of Scientific thinking on the world. Promote understanding and precise use of vocabulary. Highlight achievements of Scientists and industry to maximise children’s engagement and cultural capital. Embed “working scientifically” and enquiry approaches skills throughout the curriculum. Make connections across learning and with the wider community. Working Scientifically – the ability to work and think like Scientists every Science lesson. The enquiry approaches and skills are set out below and taught in the context of the unit content. Children learn to use a variety of enquiry approaches and skills to answer relevant Scientific questions. 					
SEND	All children will be encouraged to immerse themselves in the wonder of God’s Scientific world. Adult and peer support will ensure an inclusive environment and the delivery of a broad and balanced curriculum for all.					
Values	Compassion	Hardworking	Respect	Inviting	Sharing	Teamwork
Golden threads	Asking and answering questions	Making observations and taking measurements	Performing tests	Identify and classify	Using evidence and drawing conclusions	Gather and record data

EYFS	Characteristics of effective learning	Early Learning Goals
Enquiry Skills	Show curiosity about objects, events and people Questions why things happen Engage in open-ended activity Take a risk, engage in new experiences and learn by trial and error Find ways to solve problems / find new ways to do things / test their ideas Develop ideas of grouping, sequences, cause and effect Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world Use senses to explore the world around them Make links and notice patterns in their experiences Create simple representations of events, people and objects Build up vocabulary that reflects the breadth of their experience	Choose the resources they need for their chosen activities Handle equipment and tools effectively Answer how and why questions about their experiences Make observations Develop their own narratives and explanations by connecting ideas or events Explain why some things occur and talk about changes
Knowledge and understanding of the world	Know about the similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.	



Science – progression in knowledge and skills

Areas of Study	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans NC knowledge end points	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.	Identify and name a variety of plants and animals in their habitats including micro habitats. 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 Understand 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 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. Describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	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. - (see also Evolution and inheritance)
Vocabulary	Body, head, neck, arms, elbows, legs, knees, face, ears, eyes, eyebrows, eyelashes, nose, hair, mouth, teeth, tongue, feet, toes, fingers, nails, ankle, calf, thigh, hips, waist, trunk, chest, shoulders, back, hands, wrist, tail, wing, claw, fin, scales, feathers, fur, beak, senses, hearing, seeing, touching, smelling, tasting, smooth, bright, dim, loud, quiet, high, low	offspring, life cycles, grow, change, adults, basic needs, water, food, air survival, exercise, food types (fruit and veg, bread, rice, pasta, milk, dairy, foods high in fat and sugar, meat, fish, eggs, beans), hygiene	Nutrition, food types, carbohydrates, protein, vitamins and minerals, fat, sugar, fruits and veg, dietary fibre, water, balanced diet, skeleton, muscles, support, protection, movement, names of bones, vertebrate, invertebrate	Digestive system, nutrition, mouth, teeth, canine, incisor, molar, pre-molar, saliva, tongue, rip, tear, chew, grind, cut, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus, carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain	gestation, asexual reproduction, sexual reproduction, sperm, egg, cells, clone, embryo, foetus, prenatal, adolescence, puberty, adulthood life expectancy, old age, hormones.	Circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle, evolution, suited/suitable, adapted, adaptation, offspring, reproduction, variation, inherit, inheritance, fossils
Living things and their habitat	Observe changes across the four season. Observe and describe weather	Explore and compare the differences between things that are living, dead, and things that have never		Recognise that living things can be grouped in a variety of ways.	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



Science – progression in knowledge and skills

NC knowledge end points	associated with the seasons and how day length varies.	<p>been alive.</p> <p>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.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro- habitats.</p> <p>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>		<p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p>	Describe the life process of reproduction in some plants and animals.	<p>observable characteristics and based on similarities and differences, including micro- organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics. - (see also Evolution and inheritance)</p>
Vocabulary	Season, spring, summer, autumn, winter, weather, hot, warm, cool cold, sunny, cloudy, windy, rainy, snowing, hailing, sleet, frost, fog, mist, icy, rainbow, thunder, lightning, storm, light, dark, day, night	Living, dead, never been alive, names of local habitats, lond, woodland, meadow, name micro habitats, under log, stony path, under bushes, suited, basic needs, depend, food, food chain, shelter		Classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, names of them, human impact, positive, negative (impact).	Life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets, runners, mammal, amphibian, insect, bird, fish, reptile, eggs, live young	Organism, micro-organism, fungus, mushrooms, classification keys, environment, fish, amphibians, reptiles, birds, ,mammals, vertebrates, invertebrates, name some of these, arachnid, mollusc, insect, crustacean
Plants NC knowledge end points	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants,</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the</p>		Describe the life process of reproduction in some plants and animals	- (see Evolution and inheritance)



Science – progression in knowledge and skills

	including trees.		<p>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.</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			
Vocabulary	Names of: wild plants, garden plants, flowering plants, trees, leaf, flower, blossom, petal, fruit, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, vegetable	seeds, bulbs, water, light, growth, healthy, shoot, seedling,	leaf, flower, blossom, petal, fruit, root, bulb, seed trunk, branch, stem, water, light, air, nutrients, soil, fertiliser, grow, healthy, transported, life cycle, pollination, seed formation, seed dispersal			



Science – progression in knowledge and skills

<p>Materials and properties</p> <p>NC knowledge end points</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Understand what is meant by raw synthetic materials.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>		<p>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.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Understand about the sustainability of materials, raw and synthetic materials and the issues around the use of natural resources.</p>	
<p>Vocabulary</p>	<p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, waterproof, absorbent, tear, rough, smooth, shiny, dull, see through, not see through</p>	<p>Suitable/unsuitable, use, object, material, property, wood, plastic, glass, metal, water, rock, fabrics, hard, soft, stretchy, flexible, waterproof, absorbent, transparent, translucent, opaque, shape, change, twist, squash, bend, stretch, roll, squeeze</p>			<p>Y4 plus rigid, hard, soft, stretchy, flexible, waterproof, absorbant, electrical/thermal conductivity, melting, dissolve, solution, insoluble, solute, solvent, particle, mixture, filtering, sieving, residue, reversible/non reversible changes, new material, burning, rusting,</p>	
<p>Changing Materials</p> <p>NC knowledge end points</p>		<p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>		<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>Observe that some materials change state when they are heated or cooled, and measure or research</p>	<p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide</p>	



Science – progression in knowledge and skills

Vocabulary				<p>the temperature at which this happens in degrees Celsius (°C).</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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>	
		<p>squash, bend, twist, stretch. strong, flexible, light, hard-wearing, elastic. recycle, pollution.</p>		<p>solids, liquids, gases, particles. evaporate, condense, melt, freeze, heat, cool, melting point, freezing point, boiling point, water vapour. precipitation, evaporation, condensation, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail. atmosphere.</p>	<p>thermal conductor/insulator, magnetism, electrical resistance, transparency, dissolving, substance, soluble, insoluble, reversible change, physical change, irreversible change, chemical change, burning, new material, product. sieving, filtering, magnetic attraction.</p>	
Evolution NC knowledge end points		<p>Identify that most living things live in habitats to which they are suited.</p> <p>Describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other.</p>	<p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>		<p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in</p>



Science – progression in knowledge and skills

Vocabulary						different ways and that adaptation may lead to evolution.
			Rock, stone, pebble, boulder, soil, fossils, grains, crystals, texture, absorb water, let water through, marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat,			

Light NC knowledge end points			<p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows change</p>			<p>Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>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.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
Vocabulary			Light, light source, darkness, reflect, reflective, mirror, shadow, block, direction, transparent, opaque,			Light, light source, darkness, reflect, reflective, shadow, block, absorb, direction, transparent, opaque, translucent



Science – progression in knowledge and skills

			translucent.			
Sound NC knowledge end points	Identify, name and draw and label the basic parts of the human body and say which part of the body is associated with each sense.			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.		
Vocabulary				Sound, sound source, noise, vibration, travel, solid, liquid, gas, pitch, tune, high, low, volume, loud, quiet, fainter, muffle, strength of vibrations, insulation, instrument, percussion, strings, bass, woodwind, tuned instrument		
Forces NC knowledge end points		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and	Compare how things move on different surfaces. Notice that some forces need contact between		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between	



Science – progression in knowledge and skills

<p>NC knowledge end points</p>		stretching.	<p>two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>		<p>the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	
<p>Vocabulary</p>		See materials.	<p>Force, contact force, non contact force, magnetic force, magnet, strength, bar/ring/button/horseshoe magnets, attract, repel, magnetic material, metal, iron, steel, non magnetic, poles, north/south pole</p>		<p>Fall, Earth, gravity, weight, mass, air resistance, water resistance, friction, moving surfaces, mechanisms, levers, pulleys, gears, force, transfers</p>	
<p>Electricity</p>				<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>Compare and give reasons for variations in how components function, including the brightness of</p>



Science – progression in knowledge and skills

Vocabulary				<p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise some common conductors and insulators and insulators, and associate metals with being good conductors.</p>		<p>bulbs, the loudness of buzzers and the on/off position of switches</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
Vocabulary				<p>Electricity, appliance, device, mains, plug, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive/negative, connect, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, motor, faster/slower, conductor, insulator, metal/non metal</p>		<p>Electricity, appliance, device, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive, negative, terminal, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor, conductor, insulator, voltage, current, resistance,</p>
Earth in Space NC knowledge end points	<p>Observe changes across the four seasons.</p> <p>Observe and describe whether associated with the seasons and how day length varies.</p>				<p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical</p>	



Science – progression in knowledge and skills

Vocabulary					<p>bodies.</p> <p>Use the idea of the Earth's rotate on to explain day and night and the apparent movement of the sun across the sky.</p>	
					<p>Earth, planets, sun, solar system, moon, celestial body, spherical, rotation, spin, night and day, names of planets, dwarf planet, orbit, geocentric model, heliocentric model, shadow clocks, sundials, astronomical clocks</p>	

Working Scientifically	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	Ask simple questions when prompted Suggest ways of answering a question	Ask simple questions Recognise that questions can be answered in different ways	Ask relevant questions when prompted Use different types of scientific enquiry to answer them. Set up simple and practical enquiries, comparative and fair tests with some support.	Ask relevant questions. Use different types of scientific enquiries to answer their questions Set up simple and practical enquiries, comparative and fair tests	Plan different types of scientific enquiries to answer questions. With prompting, recognise and control variables where necessary	Plan different types of scientific enquiries to answer questions Recognise and control variables where necessary
Do	Make relevant observations using simple equipment Conduct simple tests, with support Identify and classify with guidance	Observe closely, using simple equipment Perform simple tests Identify and classify	Make systematic and careful observations, using simple equipment Use standard units when taking measurements	Make systematic and careful observations using a range of equipment, including thermometers and data loggers Take accurate measurements using standard units, where appropriate	Select, with prompting, and use appropriate equipment to take readings Take precise measurements using standard units Begin to understand the need for repeat readings	Use a range of scientific equipment to take measurements Take measurements with increasing accuracy and precision Take repeat readings when appropriate



Science – progression in knowledge and skills

Record	Gather and record data	Record and communicate their findings in a range of ways and begin to use simple scientific language Gather and record data to help answer questions	With modelling and guidance, gather, record, classify and present data in a variety of ways to help to answer questions With prompting, use various ways of recording, grouping and displaying evidence and suggest how findings may be tabulated	Gather, record, classify and present data in a variety of ways to help to answer questions Record findings using simple scientific language, drawings and labelled diagrams Record findings using keys, bar charts, and tables	Take and process repeat readings Record data and results Record data using labelled diagrams, keys, tables and charts Use line graphs to record data	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar charts and line graphs
Review	Recognise findings Use their observations and ideas to suggest answers to simple questions	Use their observations and ideas to suggest answers to simple questions	With prompting, suggest conclusions from enquiries Suggest how findings could be reported	Report on findings from enquiries, including oral and written explanations, of results and conclusions	Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships	Report and present findings from enquiries, including conclusions and causal relationships
Vocabulary	Questions, answers, equipment, gather, measure, record, results, sort, group, test, explore, observe, compare, describe, similar/ities, different/ces, beaker, pipette, syringe	Previous vocab plus observe changes over time, notice patterns, secondary sources, hand lenses, egg timers, identify, classify, data,	Previous vocab plus scientific enquiry changes over time, notice patterns, secondary sources, comparative tests, fair tests, careful, accurate, observations, equipment, gather, measure, record, data, evidence, results, keys, bar charts, table,	Previous vocab plus enquiry types increase, decrease, identify, classify, order, notice patterns, relationships, appearance, present results, data loggers	Previous vocab plus, notice patterns, relationships, independent variable, dependent variable, controlled variable, accuracy, precision, degree of trust, classification keys, scatter graphs, line graphs, causal relationships,	Previous vocab plus opinion/fact, confidently name scientific enquiry types



Science – progression in knowledge and skills

			results, conclusions, predictions, support, thermometers		support/refute, data loggers	
--	--	--	--	--	---------------------------------	--