FEDERATION OF

FOLLIFOOT & SPOFFORTH

CHURCH OF ENGLAND PRIMARY SCHOOLS

Love Learn Thrive

Curriculum – Science

Progression of scientific vocabulary and scientific enquiry skills

Progression in programmes of study			
Early Years	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Understanding the world In Early Years Science comes under the umbrella of Understanding the world. We teach this through specific topics such as Birds, Seasons, Growing and Minibeasts. We also follow children's interests and, in the past, have looked at *Under the Sea* and *Dinosaurs*. In provision we have an *'I WONDER…'* table which has equipment to explore and investigate materials and ideas. We are always playing outside, noticing the effects of seasonal changes and the weather as part of our daily lives. As with everything in Early Years, all areas of learning are linked, but careful consideration is given to communication and language and the new scientific vocabulary we explore with the children through play. At the end of Reception, children will be assessed as expected or not yet in The Natural World ELG. Children at the expected level of development will: - explore the natural world around them, making observations and drawing pictures of animals and plants; know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Working Scientifically	Working Scientifically	Working Scientifically
	Animals Including Humans	Animals Including Humans	Animals including humans
	Living things and their habitats	Living things and their habitats	Living things and their habitats Evolution and Inheritance
	Plants	Plants	
	Everyday Materials Uses of everyday materials	States of matter Rocks	Properties and changes of materials
	Seasonal Changes	Light Sound	Light Earth and Space
		Forces and magnets	Forces
		Electricity	Electricity

Plants			
Early Years (Nursery and Reception)	Key Stage One (Years 1&2)	Lower Key Stage Two (Years 3&4)	Upper Key Stage Two (Years 5&6)
Model and encourage children to use vocabulary such as: plant, leaf, stem, trunk, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil. Expose children to supplementary vocabulary such as: seedling, healthy, unhealthy, strong, sturdy, wilting, decay, mould, life cycle	**Year 1 Unit** Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area. **Year 2 Unit** As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)	

Animals Including Humans

Early Years (Nursery and Reception)	Key Stage One (Years 1&2)	Lower Key Stage Two (Years 3&4)	Upper Key Stage Two (Years 5&6)
Model and encourage children to use vocabulary such as: • egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, jump, fly, patterns, spots, stripes Expose children to supplementary vocabulary such as: life cycle, mane, webbed feet	**Year 1 Unit** Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves • Names of animals experienced first-hand from each vertebrate group • Parts of the body including those linked to PSHE teaching • Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat. Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body. **Year 2 Unit** Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)	**Year 3 Unit** Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine. **Year 4 Unit** Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain	**Year 5 Unit** Puberty – the vocabulary to describe sexual characteristics **Year 6 Unit** Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle

Living Things and their habitats			
Early Years (Nursery and Reception)	Key Stage One (Years 1 &2)	Lower Key Stage Two (Years 3 & 4)	Upper Key Stage Two (Years 5 &6)
Model and encourage children to use vocabulary such as: natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern Expose children to supplementary vocabulary such as: living, dead, similar	• Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed • Names of local habitats e.g. pond, woodland etc. • Names of micro-habitats e.g. under logs, in bushes etc	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	**Living Things and Their Habitats Y5 Unit** Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings **Living Things and Their Habitats Y6 Unit** Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering **Evolution and Inheritance Unit** Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils

Materials including Rocks			
Early Years (Nursery and Reception)	Key Stage One (Years 1 &2)	Lower Key Stage Two (Years 3 & 4)	Upper Key Stage Two (Years 5 &6)
Model and encourage children to use vocabulary such as: mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric Expose children to supplementary vocabulary such as: solid, liquid, rigid, stronger, weaker	**Year 1 Unit** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through **Year 2 Unit** Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	**Rocks Unit** Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil **States of Matter Unit** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material

Seasonal Changes into Light & Sound and Earth and Space			
Early Years (Nursery and Reception)	Key Stage One (Years 1 &2)	Lower Key Stage Two (Years 3 & 4)	Upper Key Stage Two (Years 5 &6)
Model and encourage children to use vocabulary such as: light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror. Expose children to supplementary vocabulary such as: light source, reflective, non-reflective, dim, dimmer, dimmest	• Weather (sunny, rainy, windy, snowy etc.) • Seasons (winter, summer, spring, autumn) • Sun, sunrise, sunset, day length	**Light Unit** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous **Sound Unit** Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	**Light Unit** *As for Year 3 & 4 unit on Light, plus* straight lines, light rays **Earth and Space Unit** Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets

Electricity			
Early Years (Nursery & Reception)	Key Stage One (Years 1 &2)	Lower Key Stage Two (Years 3 & 4)	Upper Key Stage Two (Years 5 & 6)
		Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage N.B. Children do not need to understand what voltage is, but will use volts and voltage to describe different batteries. The words "cells" and "batteries" are now used interchangeably.

Magnets and Forces			
Early Years (Nursery & Reception)	Key Stage One (Years 1 &2)	Lower Key Stage Two (Years 3 & 4)	Upper Key Stage Two (Years 5 & 6)
		Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears

SCIENCE		EYFS NURSERY & RECEPTION	Key Stage 1 YEAR 1 & YEAR 2		Lower Key Stage 2 YEAR 3 & YEAR 4		Upper Key Stage 2 YEAR 5 & YEAR 6	
QUESTION		**Ask simple questions** about immediate environment.	**Ask questions** and know some can be answered using scientific enquiry.		**Identify scientific questions.** ie can be investigated through scientific enquiry.		**Raise scientific questions** and **hypothesise**	
SCIENTIFIC ENQUIRY	**OBSERVE**	**Qualitative** Talk about similarities and differences.	**Qualitative and Simple Quantitative**		**Qualitative and Quantitative**		**Qualitative and Quantitative**	
			Observe change over time. Use Senses/ equipment.	Measure change over time e.g. plant growth. Select equipment	Systematic/ careful observations. Use bar charts, pictograms, tables.	Accurate measurements. Use time graphs and other graphs.	Accurate/ precise measurements, Diagrams, tables, bar and line graphs.	Take repeat readings when appropriate. Scatter graphs.
	CLASSIFY and FIND PATTERNS	**Talk and Sort**	**Identify and Classify**		**Classify and Find Patterns**		**Classify and Find Patterns**	
		Use simple scientific criteria.	e.g. familiar plants, animals, materials Compare and contrast	e.g. living/ dead/ never alive; materials Compare differences	Classify animals/ materials. Link two variables e.g. *the closer the magnet the bigger the force.*	Use simple classification keys. Link two variables e.g. *the more cells in a circuit, the brighter the bulb.*	Use complex classification keys. Identify causal relationships.	Develop classification keys. Identify evidence that supports/ refutes causal relationship.
	CONTROL INVESTIGATIONS: comparative and fair testing	**Explore** objects/ materials/ living things/ resources designed to model scientific processes.	**Simple comparative tests**		**Comparative and fair tests**		**Design own comparative and fair tests**	
			e.g. *What is the best material for an umbrella?*	e.g. *What if plants do not get light and water?*	**Predict.** Fair tests e.g. *How does distance affect magnet strength?*	**Predict.** Language of independent and control variable.	Identify when and how to use tests. Recognise and control variables. Make predictions based on previous test results.	
	RESEARCH	**Listen and respond to stories** about scientific processes/ events/ objects.	**Find information** using given sources. e.g. *animals.*	**Select information** from a range of given sources.	**Research** using given sources. e.g. *research different food groups and how they keep us healthy*	**Select information** to support findings. e.g. *research animals*	**Explore relevant information by using a wide range of secondary sources.**	
							Explore how scientific ideas have developed over time.	Identify evidence that has been used to support or refute ideas.
	MODEL	**Concrete** context. Create drawings and models of their environment	**Concrete** context Draw diagrams e.g. *parts of plants/ the body.*	**Explore** and **create** drawings and physical models e.g. *habitats.*	**Abstract** contexts e.g. processes and phenomena such as forces/ light. **Use** labelled diagrams and drawings and physical models.	**Abstract** contexts e.g. processes and phenomena such as sound/ electricity. **Create** labelled diagrams and drawings and physical models.	**Abstract** contexts. **Evaluate** diagrams/ models e.g. states of matter; solar system.	**Abstract** contexts. **Create** own versions of models. e.g. circulatory system; light.
CONCLUDE		**Explain** simple phenomena: How? Why?	**Describe** what has happened or been observed.	**Explain** why a simple observation occurred. **Evaluate** the effectiveness of observations.	**Explain an observation or an event in scientific terms.** Distinguish between what has been observed and why it happened. Begin to link evidence from secondary sources as well as primary. Suggest improvements.		**Evaluate original hypothesis against observed evidence and reach appropriate conclusions.** Identify causal relationships. Begin to identify how reliable the data is.	