



Science Progression

Long Row Nursery and Primary School
Inspire, Respect, Belong

EYFS

In the EYFS children will:

- Explore the natural world around them, naming some common animals and plants
- Plant seeds and learn how to care for plants as they grow
- Name the 4 seasons
- Describe some changes that occur in different seasons
- Understand that some animals hibernate
- Describe some simple animal life-cycles
- Know basic conditions for plants to grow
- Describe changes of state including solids, liquids and gases
- Explore and talk about different forces they can feel including magnetic forces
- Talk about the differences between materials and changes they notice
- Recognise some environments that are different from the one in which they live.
- Know and talk about the different factors that support their overall health and wellbeing
- Make healthy choices about food, drink, activity and toothbrushing.

Children will be taught to work scientifically by:

- Ask questions
- Explore the world around them
- Make simple observations and describe what they can see
- Record observations simply using drawings

- Make simple comparisons
- Sort and group objects
- Make simple measurements (using non-standard measures)
- Make simple predictions

Vocabulary:

- Names of seasons - Spring, summer, Autumn, Winter
- Names of common animals and plants
- Hibernate
- Life-cycle - Eggs, tadpole, frog; egg, chick, adult
- Young, adult
- Changes
- Similarities
- Differences
- Solid, liquid, gas
- Melt
- Dissolve
- Describe
- Look / observe
- Predict/guess
- Same / different
- Changes
- Sort / group
- measure

	Areas of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Animals including humans	Name a range of common animals Identify herbivores, carnivores and omnivores Describe and compare structure of fish, amphibians, reptiles, birds, mammals Know basic needs for animal survival Know ways of staying healthy Importance of exercise and eating right amounts of food Hygiene Know animals produce offspring including life-cycles Growth of humans and animals	Not in this cycle	Name parts of digestive system Name types of teeth and their functions	Know types of nutrition needed to stay healthy Know how the skeleton and muscle structure protect some animals	Describe changes in humans over time including changes over puberty	Describe and explain the human circulatory system Name ways of keeping healthy Know how nutrients are transported in humans

Key vocabulary						
Animals including humans	- Names of animal groups: fish, amphibians, reptiles, birds, mammals. - Animal diets: carnivore, herbivore, omnivore. - Human and animal body parts: e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills. - Human senses: sight, hearing, touch, smell, taste. - Exploring senses: loud, quiet, soft, rough. - Other: human, animal, pet. - Being born and growing: Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk. - Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck. - Life cycle stages: e.g. baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog. - Survival and staying healthy: basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs. - Food groups: fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar. Previously introduced vocabulary: water.	- Digestive system: digest, digestion, tongue, teeth, saliva, salivary glands, oesophagus, stomach, liver, pancreas, gall bladder, small intestine, duodenum, large intestine, rectum, anus, faeces, organ. - Types of teeth and dental care: molar, premolar, incisor, canine, wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth.	- Food groups and nutrients: fibre, fats (saturated and unsaturated), vitamins, minerals. - Skeletons and muscles: skeleton, muscles, tendons, joints, protection, support, organs, voluntary muscles, involuntary muscles, biceps, triceps, contract, relax, bone, cartilage, shell, vertebrate, invertebrate, endoskeleton, exoskeleton, hydrostatic skeleton. - Names of human bones: e.g. skull, spine, backbone, vertebral column, ribcage, pelvis, clavicle, scapula, humerus, ulna, pelvis, radius, femur, tibia, fibula. - Other: energy. Previously introduced vocabulary: movement.	- Process of reproduction: gestation, asexual reproduction, sexual reproduction, sperm, egg, cells, clone. - Changes and life cycle: embryo, foetus, uterus, prenatal, adolescence, puberty, menstruation, adulthood, menopause, life expectancy, old age, hormones, sweat. - Changing body parts: e.g. breasts, penis, larynx, ovaries, genitalia, pubic hair. Previously introduced vocabulary: reproduction, reproduce, types of animals and animal groups, fertilisation.	- Circulatory system: circulation, heart, pulse, heartbeat, heart rate, lungs, breathing, blood vessels, blood, pump, transported, oxygenated blood, deoxygenated blood, oxygen, arteries, veins, capillaries, chambers, plasma, platelets, white blood cells, red blood cells. - Lifestyle: drug, alcohol, smoking, disease, calorie, energy input, energy output. - Other: water transportation, nutrient transportation, waste products. Previously introduced vocabulary: carbon dioxide.	

	Areas of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Living things and their habitats	Naming living, non-living, dead things Identify living things in different habitats How do habitats provide needs? Look at micro-habitats (local environment) Compare animals and plants living in familiar habitats with less familiar habitats.	Not in this cycle	Not in this cycle	Group living things according to characteristics Describe how environments can change and how this affects the animals and plants living there Describe simple food chains	Describe and explain how life cycles can be different Explain sexual and asexual reproduction	Group living things into more complex groups Understand what a microorganism is Explain how living things can be classified

Key Vocabulary						
Living things and their habitats	• <u>Living or dead</u>: living, dead, never living, not living, alive, never been alive, healthy. • <u>Habitats including microhabitats</u>: depend, shelter, safety, survive, suited, space, minibeast, air. • <u>Life processes</u>: movement, sensitivity, growth, reproduction, nutrition, excretion, respiration. • <u>Food chains</u>: food sources, food, producer, consumer, predator, prey. • <u>Names of habitats and microhabitats</u>: e.g. under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat. Previously introduced vocabulary: senses, carnivore, herbivore, omnivore, seed, water, names of materials.			• <u>Living things</u>: organisms, specimen, species. • <u>Grouping living things</u>: classification, classification keys, classify, characteristics. • <u>Names of invertebrate animals</u>: snails and slugs, worms, spiders, insects. • <u>Invertebrate body parts</u>: e.g. wing case, abdomen, thorax, antenna, segments, mandible, proboscis, prolegs. • <u>Environmental changes</u>: environment, environmental dangers, adapt, natural changes, climate change, deforestation, pollution, urbanisation, invasive species, endangered species, extinct. Previously introduced vocabulary: carbon dioxide, fish, bird, mammal, amphibian, reptile, skeleton, bone, vertebrate, invertebrate, backbone, names for animal body parts, names of common plants, photosynthesis.	<u>Reproduction</u>: asexual reproduction, sexual reproduction, gestation, • metamorphosis, gametes, tuber, runners/side branches, plantlet, cuttings, embryo, adolescent, penis, vagina, egg, pregnancy, gestation. Previously introduced vocabulary: life cycle, pollination, offspring, fertilise, fertilisation, sepal, filament, anther, stamen, pollen, petal, stigma, style, ovary, carpel, ovule, stem, bulb, roots, mammal, adult, baby, sperm, cells, live young.	• <u>Classifying</u>: Carl Linnaeus, Linnaean system, flowering and non-flowering plants, variation. • <u>Microorganisms</u>: bacteria, single-celled, microbes, microscopic, virus, fungi, fungus, mould, antibiotic, yeast, ferment, microscope, decompose.

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Materials and their properties	Not in this cycle	Name everyday materials Describe some properties of materials Compare and group everyday materials Say why some materials are suitable for specific uses Know that the shape of some materials can be changed Include Scientist study eg. Charles Macintosh	Compare and group materials into solids, liquids and gases Observe that some materials change state when they are heated or cooled Identify the part played by evaporation and condensation in the water cycle Name some different rock types Describe physical properties of different rock types Know how fossils are formed Know and explain what and how rocks are made	Not in this cycle	Not in this cycle	Compare and group materials based on their properties Know some materials can dissolve Identify solids, liquids and gases Name some reversible and irreversible changes

Key Vocabulary						
Materials and their properties		• <u>Names of materials</u>: wood, plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric. • <u>Properties of materials</u>: hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff. • <u>Other</u>: object. • <u>Changing shape</u>: squash, bend, twist, stretch. • <u>Properties of materials</u>: e.g. strong, flexible, light, hard-wearing, elastic. • <u>Other</u>: suitability, recycle, pollution.	• <u>States of matter</u>: solids, liquids, gases, particles. • <u>State change</u>: evaporate, condense, melt, freeze, heat, cool, melting point, freezing point, boiling point, water vapour. • <u>Water cycle</u>: precipitation, evaporation, condensation, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail. • <u>Other</u>: atmosphere. Previously introduced vocabulary: temperature, rain, cloud, snow, wind, sun, hot, cold, absorb, carbon dioxide. • <u>Types of rock</u>: sedimentary rock, igneous rock, metamorphic rock. • <u>Properties of rocks</u>: permeable, semi-permeable, impermeable, durable. • <u>Names of rocks</u>: e.g. marble, chalk, granite, sandstone, slate. • <u>Formation of rocks and fossils</u>: natural, human-made, magma, lava, molten rock, sediment, erosion, fossilisation, layers, bone, fossil. • <u>Soil</u>: sandy, chalky, clay, peaty, loamy, topsoil, subsoil, bedrock, mineral, organic matter, compost.			• <u>Properties of materials</u>: thermal conductor/insulator, magnetism, electrical resistance, transparency. • <u>Mixtures and solutions</u>: dissolving, substance, soluble, insoluble. • <u>Changes of materials</u>: reversible change, physical change, irreversible change, chemical change, burning, new material, product. • <u>Separating</u>: sieving, filtering, magnetic attraction. Previously introduced vocabulary: electrical conductor/insulator, bulb, translucent.

			• <u>Other:</u> palaeontology. Previously introduced vocabulary: soil, water, air.			
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	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Forces and Magnets	Not in this cycle	Not in this cycle	Not in this cycle	Describe how things move Know magnetism is a force Know that some magnets attract and others repel Know materials that are attracted to magnets Know that magnets have two poles	Not in this cycle	Know that gravity is a force Explain how gravity acts Name and describe how forces can act on others Explain how mechanisms affect forces

	Key Vocabulary					
Forces and Magnets				• <u>How things move</u>: move, movement, surface, distance, strength. • <u>Types of forces</u>: push, pull, contact force, non-contact force, friction. • Magnets: magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass. • <u>Magnetic and non-magnetic materials</u>: e.g. iron, nickel, cobalt. Previously introduced vocabulary: metal, names of materials.		• <u>Types of forces</u>: air resistance, water resistance, buoyancy, upthrust, Earth's gravitational pull, gravity, opposing forces, driving force. • Mechanisms: levers, pulleys, gears/cogs. • <u>Measurements</u>: weight, mass, kilograms (kg), Newtons (N), scales, speed, fast, slow. • <u>Other</u>: streamlined, Earth. Previously introduced vocabulary: air, heat, moon.

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Plants	Not in this cycle	Naming common plants Basic structure of flowering plants including trees in the local environment Growing fruit and vegetables and observing changes over time. Bulbs and seeds Germination and requirements for growth Reproduction and growth in plants	Not in this cycle	Describe function of parts of flowering plants Describe how nutrients and water are transported in plants Know requirements of different plants for growth Name and describe process of pollination and seed dispersal in plant life cycles	Not in this cycle	Not in this cycle

Key Vocabulary						
Plants		• <u>Names of common plants:</u> wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass. • <u>Name some features of plants:</u> e.g. flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, branch, root, seed, bulb, soil. • <u>Name some common types of plant</u> e.g. sunflower, daffodil. • <u>Growth of plants:</u> germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling. • <u>Needs of plants:</u> sunlight, nutrition, light, healthy, space, air. • <u>Name different types of plant:</u> e.g. bean plant, cactus. • <u>Names of different habitats:</u> e.g. rainforest, desert. Previously introduced vocabulary: water, temperature, warm, hot, cold, habitat.		• <u>Water transportation:</u> transport, evaporation, evaporate, nutrients, absorb, anchor. • <u>Life cycle of flowering plants:</u> pollination (insect/wind), pollen, nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, fertilisation, fertilise, stamen, anther, filament, carpel (pistil), stigma, style, ovary, ovule, sepal, carbon dioxide. Previously introduced vocabulary: life cycle.		

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Evolution and Inheritance	Not in this cycle	Not in this cycle	Not in this cycle	Not in this cycle	Recognise that living things have changed over time and fossils provide information about the past Recognise that animals produce offspring of the same kind Identify how animals and plants are adapted to their environment	Not in this cycle
	Key Vocabulary					
Evolution and Inheritance					• Evolution and inheritance: evolve, adaptation, inherit, natural selection, adaptive traits, inherited traits, mutations, theory of evolution, ancestors, biological parent, chromosomes, genes, Charles Darwin. • Other: selective breeding, artificial selection, breed, cross breeding, genetically modified food, cloning, DNA. Previously introduced vocabulary: classification, offspring, characteristics, habitat, environment, adapt, variations, human, fossil, suited, cells, names of different habitats, names of animals and their body parts, species, sedimentary rock, lava, igneous rock, metamorphic rock, magma, heat, fossilisation.	

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Light	Not in this cycle	Not in this cycle	Know that light is needed to see Know dark is the absence of light Know some sources of light Know that light can be reflected Know ways in which light can be dangerous Know how shadows are formed	Not in this cycle	Not in this cycle	Know that light travels in straight lines Explain how light travels to our eyes and how we see Explain why shadows have the same shape as objects

Key Vocabulary						
Light			• <u>Light and seeing:</u> dark, absence of light, light source, illuminate, visible, shadow, translucent, energy, block. • <u>Light sources:</u> e.g. candle, torch, fire, lantern, lightning. • <u>Reflective light:</u> reflect, reflection, surface, ray, scatter, reverse, beam, angle, mirror, moon. • <u>Sun safety:</u> dangerous, glare, damage, UV light, UV rating, sunglasses, direct. Previously introduced vocabulary: opaque, transparent, sunlight, sun.			• <u>Reflection:</u> periscope. • <u>Seeing light:</u> visible spectrum, prism. • <u>How light travels:</u> light waves, wavelength, straight line, refraction. Previously introduced vocabulary: names and properties of materials, absorb.

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Sound	Not in this cycle	Not in this cycle	Not in this cycle	Know how sound is made Know how some instruments produce sound Know vibrations produce sound Explain how sound travels from its source to the human ear Know that pitch and volume are affected by types of vibrations Know sound gets fainter as the distance from the source increases	Not in this cycle	Not in this cycle

	Key Vocabulary					
Sound				• <u>Parts of the ear</u>: eardrum. • <u>Making sound</u>: vibration, vocal cords, particles. • <u>Measuring sound</u>: pitch, volume, amplitude, sound wave, quiet, loud, high, low, travel, distance. • <u>Other</u>: soundproof, absorb sound.		

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Earth and Space	Not in this cycle	Not in this cycle	Not in this cycle	Not in this cycle	Name the main "bodies" in the solar system Describe the movement of the Earth and planets Know how day and night relate to the Earth's rotation	Not in this cycle

	Key Vocabulary					
Earth and Space					• <u>Solar system</u>: star, planet. • <u>Names of planets</u>: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus. • <u>Shape</u>: spherical bodies, sphere. • <u>Movement</u>: rotate, axis, orbit, satellite. • <u>Theories</u>: geocentric model, heliocentric model, astronomer. • <u>Day length</u>: sunrise, sunset, midday, time zone. Previously introduced vocabulary: Sun, moon, shadow, day, night, heat, light, reflect.	

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Electricity	Not in this cycle	Not in this cycle	Understand what electricity is Know appliances that use electricity Build series circuits using switches and bulbs Know electricity flows round a circuit Identify insulators and conductors	Not in this cycle	Know that brightness or volume can be altered by change in electrical current Begin to understand resistance in an electrical circuit Use symbols in circuit representations	Not in this cycle
	Key Vocabulary					
Electricity			• Electricity: mains-powered, battery-powered, mains electricity, plug, appliances, devices. • Circuits: circuit, simple series circuit, complete circuit, incomplete circuit. • Circuit parts: bulb, cell, wire, buzzer, switch, motor, battery. • Materials: electrical conductor, electrical insulator. • Other: safety. Previously introduced vocabulary: names of materials.		• Flow and measure of electricity: voltage, amps, resistance, electrons, volts (V), current. • Circuits: symbol, circuit diagram, component, function, filament. • Variations: dimmer, brighter, louder, quieter. • Types of electricity: natural electricity, human-made electricity, solar panels, power station. • Other: positive, negative.	

	Area of Study					
	Year 1/2 2024-25	Year 1/2 2025-26	Year 3/4 2024-25	Year 3/4 2025-26	Year 5/6 2024-25	Year 5/6 2025-26
Seasonal Changes	- observe changes across the 4 seasons; - observe and describe weather associated with the seasons and how day length varies.	Not in this cycle	Not in this cycle	Not in this cycle	Not in this cycle	Not in this cycle
	Key Vocabulary					
Seasonal Changes	<u>Seasons</u>: spring, summer, autumn, winter, seasonal change. <u>Weather</u>: e.g. sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast. <u>Measuring weather</u>: temperature, rainfall, wind direction, thermometer, rain gauge. <u>Day length</u>: night, day, daylight.					

	Area of Study		
	Year 1/2 (over a 2 year cycle)	Year 3/4 (over a 2 year cycle)	Year 5/6 (over a 2 year cycle)
Working Scientifically	Ask simple questions Make simple observations using simple equipment Carry out simple tests (often teacher led) Begin to understand that some things need to stay the same when carrying out simple tests Make comparisons Sort and group objects Begin to notice patterns Take more accurate measurements using both non-standard and some standard measurements Gather and record simple data using drawings, simple tables and simple bar charts Talk about what they have found out Make simple predictions	Ask relevant questions Begin to set up simple practical enquiries Begin to understand the need for a fair test Take accurate measurements using standard units using a greater range of scientific equipment Record findings using drawings, labelled diagrams, keys, bar charts and tables Gather information. Classify and present data in different ways Report on findings - display or present results Use results to draw simple conclusions Make predictions and suggest improvements Identify similarities, differences or changes Use evidence to answer questions	Plan own scientific enquiries to answer questions Know how and when to set up comparative and fair tests including recognising variables that may need to be controlled Take measurements using a range of scientific equipment with greater accuracy and precision Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Report and present findings in a variety of ways including oral and written presentations Identify scientific evidence that has been used to support or refute ideas or arguments. Make decisions about what observations to make, what measurements to take and whether to repeat them.

Key Vocabulary			
Working Scientifically	aim	accurate	accuracy and precision
	answers	bar chart	bar graphs
	block diagrams	chart	causal relationship
	changes	classify	degree of trust
	compare	comparative test	dependent variable
	describe	conclusion (What have we found out?)	independent variable
	difference	criteria	justify
	different	data	line graphs
	enquiry	develop	refute
	equipment	diagram	repeat results
	experience	evaluate	scatter graphs
	explore	evidence	support
	findings	explanation	variables (what do we change, what do we keep the same, how and what are we measuring?)
	gather	key	
	group	making a test fair	
	identify (name)	method	
	investigate	observations	
	measure	plan (What will we do?)	
	notice	practical enquiry	
	observe	prediction (What do you think will happen?)	
	patterns	primary sources	
	pictograms	questioning	
	questions	reasoning	
	record	relationships	
	same	results (What happened?)	
	similarity	secondary sources	
	simple tables	standard units	
	sort	table	
	sorting diagrams	What do we change, what do we keep the same, what are we measuring?	
	tally charts		
	test		
	What will we do? (plan)		
	What do you think will happen? (prediction)		
	What happened? (results)		
	What have we found out? (conclusion)		

National Curriculum Purpose 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 should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should 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

KS1 and KS2 Programme of study

<https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study>