



Science



Progression Document

2026

Created using the September 2024 White Rose Science curriculum progression, enquiry type mapping, working scientifically skills mapping and vocabulary progression documents.
Early Years science is drawn from the Shawclough Nursery Sky, Nursery Ocean and Reception curriculum maps under Understanding the World.

Science progression document

In Science, pupils learn to ask questions about the world, build secure scientific knowledge and use enquiry to test ideas, gather evidence and explain what they find. In Nursery Sky, Nursery Ocean and Reception, foundations develop through Understanding the World, particularly the Natural World, alongside talk and practical exploration. From Year 1 to Year 6, White Rose Science builds scientific knowledge, enquiry skills and vocabulary progressively.

Element	Progression model
Substantive knowledge	Animals including humans; living things and habitats; plants; materials; rocks; states of matter; electricity; Earth and space; seasonal change; sound; light; forces; evolution and inheritance; sustainability.
Disciplinary knowledge	Working scientifically develops through asking questions, planning, observing, measuring, recording, presenting, concluding and evaluating.
Progression model	Nursery Sky: sensory exploration and noticing. Nursery Ocean: describing, comparing and observing change. Reception: closer observation, questions, predictions and simple explanations. Key Stage 1: observe, name, compare and group. Lower Key Stage 2: use equipment, tests, classification and evidence. Upper Key Stage 2: control variables, record with increasing complexity and evaluate results.
Local curriculum emphasis	Learning is contextualised through outdoor observations, Shawclough/local environment links, sustainability and opportunities to revisit seasonal, fieldwork and data collection skills.

Whole-school long-term overview

Year group	Autumn	Spring	Summer
Nursery Sky	Autumn 1: What can I see, hear, smell, taste and touch? Autumn 2: What happens when I shine a torch?	Spring 1: What happens to ice when it gets warm? Spring 2: What is changing outside in spring?	Summer 1: What does a plant or animal need? Summer 2: What happens when I pour or mix sand and water?
Nursery Ocean	Autumn 1: How do my senses help me find out? Autumn 2: Why is dark necessary?	Spring 1: How can we make ice melt faster or slower? Spring 2: What happens to frogspawn?	Summer 1: What do living things need to grow? Summer 2: What helps something float?
Reception	Autumn 1: What lives on my hands and how does it get there? Autumn 2: Can you catch a shadow?	Spring 1: How do animals keep warm when it's freezing and cool when it's hot? How do germs travel through the air when we cough? Spring 2: How did Beatrix Potter use her 'Scientist eyes' to look closely at nature?	Summer 1: How do living things grow and change? Summer 2: What is happening to my ice lolly? What lives beneath the waves? What changes when summer arrives?
Year 1	Seasonal changes: How does the weather and day length change in autumn and winter? [Observation over time] The human body: Which body parts and senses help us explore the world? [Pattern seeking] Materials: Which materials are best for different jobs? [Comparative test] Seasonal changes: What changes can we observe as the seasons change? [Observation over time]	Planting A: What happens when we plant seeds and bulbs? [Observation over time] Animals: What animals can we name and how can we group them? [Research] Caring for the planet: How can we care for plants, animals and the Earth? [Sustainability] Seasonal changes / Planting B: What changes can we observe in spring? [Observation over time]	Plants: Which plants and trees can we identify? [Identifying, grouping and classifying] Planting C: How have our plants changed over time? [Observation over time] Growing and cooking: How can we grow and prepare food responsibly? [Sustainability] Seasonal changes / Consolidation: What changes can we observe in summer? [Observation over time / consolidation]
Year 2	Animals needs for survival: What do animals, including humans, need to survive? [Identifying, grouping and classifying] Humans: How do humans grow and stay healthy? [Pattern seeking] Materials: How suitable are materials for different uses? [Comparative test] Plastic: How can plastic affect our world? [Sustainability]	Plants: light and dark: What do plants need to grow well? [Comparative test / observation over time] Living things and their habitats: How do habitats provide for living things? [Research] Plants: light and dark: How does light affect plant growth? [Comparative test]	Plants: bulbs and seeds: How do seeds and bulbs grow into mature plants? [Observation over time] Growing up: How do animals, including humans, change as they grow? [Pattern seeking] Wildlife: How can we help local wildlife? [Sustainability]

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Year group	Autumn	Spring	Summer
Year 3	Skeletons: How do skeletons support and protect animals? [Identifying, grouping and classifying] Movement: How do muscles and joints help us move? [Research] Nutrition and diet: How do animals get the nutrition they need? [Identifying, grouping and classifying] Food waste: How can we reduce food waste? [Sustainability] Rocks: How can rocks be compared and grouped? [Comparative test]	Fossils: How are fossils formed? [Research] Soils: What are soils made from? [Fair test] Light: How do light, reflection and shadows behave? [Pattern seeking] Plants A: What do flowering plants need for life and growth? [Observation over time] Biodiversity: Why is biodiversity important? [Sustainability]	Forces: How do forces affect movement? [Pattern seeking] Magnets: How do magnets behave? [Observation over time / comparative test] Plants B: How do flowers support pollination and seed dispersal? [Observation over time]
Year 4	Group and classify living things: How can we group and classify living things? [Identifying, grouping and classifying] Data collection A: What can data tell us about living things? [Observation over time] States of matter: How do materials change state? [Fair test] Sound: How are sounds made and changed? [Fair test]	Electricity: How do simple electrical circuits work? [Observation over time / fair test] Data collection C: How can we collect and interpret scientific data? [Pattern seeking] Habitats: How do environments change and affect living things? [Research] Energy / Deforestation: How can humans use resources responsibly? [Sustainability] Consolidation: How can we revisit and strengthen our scientific understanding? [Consolidation]	The digestive system: What happens to food inside the human body? [Research] Food chains: How is energy transferred in food chains? [Research] Data collection B: How can data help answer scientific questions? [Observation over time]
Year 5	Forces: How do gravity, air resistance, water resistance and friction act? [Fair test] Space: How do the Earth, Moon and planets move? [Research] Properties of materials: How can properties help us choose and compare materials? [Comparative test] Consolidation: How can we strengthen prior learning? [Consolidation]	Global warming: What is global warming and how can humans respond? [Sustainability] Animals including humans: How do humans develop to old age? [Pattern seeking] Life cycles: How do life cycles differ between animals? [Research] Reproduction A: How do some plants and animals reproduce? [Observation over time] Plastic pollution: How does plastic pollution affect living things? [Sustainability]	Reversible and irreversible changes: Which changes can be reversed and which cannot? [Identifying, grouping and classifying] Reproduction B: How can we compare methods of reproduction? [Observation over time]
Year 6	Living things and their habitats: How are living things classified? [Identifying, grouping and classifying] Electricity: How do voltage and components affect circuits? [Fair test] Renewable energy: How can renewable energy help the planet? [Sustainability] Consolidation: How can we secure science learning before transition? [Consolidation]	Light: How does light travel and how can we represent it? [Pattern seeking] The circulatory system: How does the circulatory system work? [Research] Diet, drugs and lifestyle: How do lifestyle choices affect the body? [Research] Light pollution: How does light pollution affect environments? [Sustainability]	Variation: Why are offspring similar but not identical to parents? [Fair test] Adaptations: How are living things adapted to their environments? [Observation over time / comparative test] Fossils: How does evidence from fossils help explain evolution? [Fair test] Themed projects: How can we apply our scientific knowledge to a bigger enquiry? [Project enquiry]

Working scientifically

Working scientifically area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask questions	Ask simple questions.	Ask simple questions and recognise they can be answered in different ways.	Ask questions and know different enquiry types can answer them.	Ask relevant questions and use different types of scientific enquiry.	Ask scientific questions and begin to match them to enquiry types.	Ask relevant scientific questions and choose the best enquiry type.

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Working scientifically area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	Verbally say what will be investigated, changed or kept the same where appropriate.	Verbally say what will be investigated, changed or kept the same where appropriate.	Make relevant predictions; identify what to change, observe and keep the same; set up simple enquiries with support.	Make predictions from scientific knowledge; identify variables; set up practical enquiries, comparative and fair tests.	Plan different enquiry types with support; identify variables where appropriate.	Plan enquiries, recognising and controlling variables where necessary.
Make observations	Observe closely.	Observe closely using simple equipment.	Make careful observations using scientific equipment.	Make systematic and careful observations using scientific equipment.	Use a range of equipment to make systematic and careful observations.	Use a range of equipment to make observations with increased complexity.
Take measurements	Carry out simple tests using non-standard measurements when appropriate.	Perform simple tests using standard units when appropriate.	Perform tests and simple experiments using standard units.	Take accurate measurements using standard units and equipment such as thermometers and data loggers.	Take accurate measurements using a range of equipment and begin repeat readings.	Take measurements with increasing accuracy and precision, taking repeat readings when appropriate.
Gather, record and classify data	Gather and record simple data; sort objects and living things by simple properties.	Gather and record data to help answer questions; identify and classify.	Record findings using scientific language, drawings, labelled diagrams, bar charts and tables.	Gather, record and classify data in a variety of ways; record using keys, bar charts and tables.	Record data using diagrams, labels, classification keys, tables, bar and line graphs.	Record data and results of increasing complexity using diagrams, labels, keys, tables, scatter graphs, bar and line graphs.
Present findings	Explain findings to an adult or partner.	Talk about what they found out and how they found it out.	Report findings using oral and written explanations.	Report findings using explanations, displays or presentations of results and conclusions.	Report and present findings, conclusions and causal relationships in oral and written forms.	Report and present findings, conclusions, causal relationships, explanations and degree of trust in results.
Answer questions and conclude	Answer simple questions.	Use observations and ideas to suggest answers; make simple conclusions.	Use results, findings or observations to answer questions.	Use scientific evidence to answer questions; draw simple conclusions and identify patterns or changes.	Make conclusions based on scientific evidence and own testing.	Use scientific evidence to support or refute ideas; make conclusions from evidence and testing.
Evaluate	Not explicit in KS1.	Not explicit in KS1.	Suggest questions for further investigation.	Use results to draw conclusions, make predictions, suggest improvements and raise further questions.	Suggest improvements and further questions; use test results to make predictions.	Use results to set up further comparative and fair tests; suggest how to extend investigations.

Year group	Autumn enquiry types	Spring enquiry types	Summer enquiry types
Year 1	Observation over time; Pattern seeking; Comparative test	Observation over time; Research; Sustainability	Identifying, grouping and classifying; Observation over time; Sustainability; Observation over time / consolidation
Year 2	Identifying, grouping and classifying; Pattern seeking; Comparative test; Sustainability	Comparative test / observation over time; Research; Comparative test	Observation over time; Pattern seeking; Sustainability
Year 3	Identifying, grouping and classifying; Research; Sustainability; Comparative test	Research; Fair test; Pattern seeking; Observation over time; Sustainability	Pattern seeking; Observation over time / comparative test; Observation over time
Year 4	Identifying, grouping and classifying; Observation over time; Fair test	Observation over time / fair test; Pattern seeking; Research; Sustainability; Consolidation	Research; Observation over time

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Year group	Autumn enquiry types	Spring enquiry types	Summer enquiry types
Year 5	Fair test; Research; Comparative test; Consolidation	Sustainability; Pattern seeking; Research; Observation over time	Identifying, grouping and classifying; Observation over time
Year 6	Identifying, grouping and classifying; Fair test; Sustainability; Consolidation	Pattern seeking; Research; Sustainability	Fair test; Observation over time / comparative test; Project enquiry

Vocabulary progression

Vocabulary is mapped by the year group in which each word is first introduced. Words are then deliberately revisited in later units so pupils can use increasingly precise scientific language when explaining concepts, methods and conclusions.

The progression below combines subject-specific vocabulary, working scientifically vocabulary and sustainability vocabulary from the White Rose Science September 2024 vocabulary progression document.

Subject vocabulary by strand

Strand / topic	Year introduced	Vocabulary
Animals, including humans	Year 1	hair, eyes, face, nose, ears, teeth, mouth, head, neck, arm, elbow, hand, leg, knee, foot; light, dark, blind, hear, loud, quiet, noisy, sweet, salty, sour, bitter, savoury, skin, rough, smooth, hard, soft, smell, scent, sniff, stench; animal, mammal, fur, wild mammal, pet, bird, wings, beak, feathers, webbed feet, flippers, tail, fins, scales, gills, amphibian, frog, toad, newt, reptile, lizard, crocodile, turtle, carnivore, sharp teeth, herbivore, plants, vegetable, fruit, omnivore
Animals, including humans	Year 2	shelter, heart, exercise, physical health, mental health, healthy diet, unhealthy diet, meat, sugar, germs, hygiene, doctor, disease, plaque, gums, filling; offspring, egg, parent, baby, child, teenager, life cycle, adolescent, frogspawn, tadpole, froglet, caterpillar, pupa, butterfly, insect, adult
Animals, including humans	Year 3	skeleton, skull, ribcage, pelvis, femur, spine, antennae, exoskeleton, joint, hinge joint, ball-and-socket joint, muscle, biceps, triceps, contract, relax; carbohydrates, proteins, dairy products, fats, fruit and vegetables, balanced diet, balanced meal, nutrition, Eatwell Guide, vegan diet, vegetarian diet, omnivorous diet, pescatarian diet
Animals, including humans	Year 4	incisors, canines, premolars, molars, enamel, root, decay, digestive system, mouth, oesophagus, stomach, small intestine, large intestine, rectum, saliva; producer, consumer, prey, predator, farming, overfishing, hunting
Animals, including humans	Year 5	foetus, elderly adult, milestone, womb, period, reproduce, hormone, puberty, life expectancy, gestation period, gestation
Animals, including humans	Year 6	circulatory system, blood vessels, arteries, veins, capillaries, red blood cells, white blood cells, lungs, plasma, oxygen, atria, ventricles, right atrium, left atrium, right ventricle, left ventricle, oxygenated blood, deoxygenated blood; calories, saturated fats, unsaturated fats, trans fats, drug, painkiller, depressant, stimulant, cigarette, tar, nicotine, vape, carbon monoxide, addiction, heart rate
Living things and their habitats	Year 2	Arctic plants, hibernate, habitat, cactus, desert, rainfall, ocean, seagrass, woodland, fern, moss, microhabitat, spider, snail, diet, food chain, living, dead, never alive
Living things and their habitats	Year 4	vertebrate, invertebrate, soft-bodied invertebrate, flowering plant, non-flowering plant, seasonal changes, natural resources, rewilding, nature reserve
Living things and their habitats	Year 5	monotreme, mammary gland, metamorphosis, larva, chrysalis, hatchling, nestling, fledgling, fertilisation, embryo, sperm cells, egg cells, sexual reproduction, anther, stigma, style, filament, ovary, ovule, clone, runner, tuber, asexual reproduction, cutting, parent plant
Living things and their habitats	Year 6	organism, excretion, reproduction, mollusc, arachnid, classification, coniferous tree, microorganism, bacteria, virus, fungi, characteristics
Plants	Year 1	plant, flower, leaf, petals, stem, roots, branch, trunk, roots, wildflower, daisy, garden plant, sunflower, nettle, buttercup, dandelion, deciduous tree, horse chestnut, oak, sycamore, evergreen tree, pine, holly, needles, seed, soil, growth
Plants	Year 2	sunlight, compost, herb, blossom, bulb, shoot
Plants	Year 3	water transportation, seedling, seed coating, germination, stamen, pistil, pollen, reproductive organs, pollination, pollinators, wind dispersal, animal dispersal, water dispersal, explosion dispersal, seed dispersal
Materials	Year 1	material, shiny, dull, rock, heavy, light, object, wood, metal, plastic, glass, wool, solid, liquid, melt, freeze, ice, float, sink, absorb, transparent, opaque
Materials	Year 2	natural material, human-made material, recycle, flexible, rigid, stone, pebble, brick, brittle, flexible, translucent, tough, lightweight, strong, breakable, waterproof
Materials	Year 5	electrical conductor, electrical insulator, thermal insulator, properties, lifespan, dissolve, soluble, insoluble, solution, mixture, reversible changes, reverse, chemical reaction, irreversible change, burning, heating, vinegar, bicarbonate of soda
Rocks	Year 3	granite, pumice, sandstone, chalk, marble, gneiss, crystals, grains, layers, texture, hardness, weathering, fossil, shell, fossilisation, sediment, sandy soil, clay soil, peat soil, chalky soil, organic matter, nutrients, deforestation, habitat loss
States of matter	Year 4	solid, liquid, gas, states of matter, pouring solid, ooblek, flow, freezing, melting, boiling, condensation, evaporation, melting point, water cycle, precipitation, atmosphere, petri dish
Electricity	Year 4	appliances, plug, socket, cell, electrocuted, circuit, switch, battery, buzzer, conductor, insulator

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Strand / topic	Year introduced	Vocabulary
Electricity	Year 6	series circuit, voltage, current, complete circuit, incomplete circuit
Earth and space	Year 5	Solar System, orbit, Sun, planets, Pluto, celestial body, gravity, heliocentric model, geocentric model, rotate, axis, North Pole, South Pole, Earth, night, day, moon, gravitational force, satellite
Seasonal changes	Year 1	autumn, daylight, night, weather, season, rainfall, weather, rain gauge, winter, rainy, snowy, windy, cloudy, frosty, sunny, spring, summer
Sound	Year 4	vibration, sound, volume, pitch, outer ear, ear bones, cochlea, ear drum, ear canal, decibel, insulate, high-pitched, low-pitched, background noise
Light	Year 3	light sources, natural light sources, artificial light sources, Sun, sunglasses, protect, reflection, shadow
Light	Year 6	retina, iris, pupil, lens, ray diagram, solar eclipse, refraction, medium, rainbow, prism, coloured filter, spectrum of light
Forces and magnets	Year 3	push, pull, force, contact force, friction, magnet, magnetic, poles, magnetic force, non-metal, iron, aluminium, steel, attract, repel
Forces and magnets	Year 5	frictional force, motion, air resistance, parachute, surface area, water resistance, streamlined, non-contact force, gravity, weight, lever, gear, pulley, machine
Evolution and inheritance	Year 6	variation, species, inheritance, desirable characteristics, polar habitat, desert habitat, adaptations, evolution, common ancestor, natural selection, finch, Galapagos Islands, decompose, Charles Darwin, palaeontologist, Mary Anning

Working scientifically vocabulary

Key vocabulary

Year introduced	Vocabulary
Year 1	measure, observe, compare, measurement, growth, trowel, temperature, bend, squash, twist, stretch, absorb
Year 3	hardness, reaction, bar chart, pictogram, data, increase, decrease, prediction, dissection, scales, filter paper, filter funnel, measuring cylinder, thermometer, conclusion, evaluation, data, volume, decibel meter, stopwatch, beaker, temperature, Petri dish, block chart, bar graph, classifying, classification key
Year 5	line graph, microscope, anomaly, anomalous result, control, control beaker, sieve, filtering, repeatability, accuracy, correlation, precision, angle, periscope, line graph, scatter graph, independent variable, dependent variable, controlled variables, duration, theory

Exposure words

Year introduced	Vocabulary
Year 1	draw, label, change, same, table, record, tally, pipette, size, predict, similar, different, sort, group, identify, pattern, height, number, amount, hand lens, ruler, counting cubes, centimetres, meters, suitable, unsuitable, match, test, scientific enquiry, comparative test, research, pattern seeking
Year 3	fair test, identify, group and classify, model, modelling, investigate, changed, measured, stayed the same, millimetres, millilitres, data logger, tape measure, features, scientists, diagram, sorting diagram, block diagram, distance, results
Year 5	causal relationships, decimals, analyse, interpret, conclude, capacity, mass, approximate, justify, secondary source, evidence, duration, mean, calculate, method

Sustainability vocabulary

Year introduced	Vocabulary
Year 1	Earth, helpful, harmful, recycle, reuse, crops, farmer, cook
Year 2	single-use plastic, wildlife, nature, local
Year 3	food waste, landfill, food waste recycling, edible, inedible, biodiversity, rewilding, endangered, extinct
Year 4	mains electricity, battery-powered, renewable energy, non-renewable energy, energy usage, habitat destruction, palm oil, sustainable
Year 5	global warming, greenhouse gases, fossil fuels, climate change, glacier, carbon footprint, plastic pollution, pollution, microplastic
Year 6	solar power, wind power, solar panels, wind turbine, migration, glare, light pollution, light trespass, skyglow, urban, rural, light emission

Source note: Vocabulary progression adapted from White Rose Science Vocabulary progression document, September 2024. Pupils are not expected to use every exposure word independently; exposure words should be modelled through teacher discussion and instruction.

Substantive knowledge progression: key information to retain with vocabulary

Strand	Year groups	Curriculum progression key information	Vocabulary link
Animals, including humans	Y1-Y6	Y1 common animals, animal structures, human body and senses. Y2 offspring, survival needs, exercise, diet and hygiene. Y3 nutrition, skeletons and muscles. Y4 digestive system, teeth and food chains. Y5 human development to old age. Y6 circulatory system, transport of nutrients and water, and impact of diet, exercise, drugs and lifestyle.	Move from naming body parts and animal groups to precise anatomical, nutritional, digestive, reproductive and circulatory terms.
Living things and habitats	Y2, Y4, Y5, Y6	Y2 living/dead/never alive, habitats, microhabitats and simple food chains. Y4 grouping, classification keys and environmental change. Y5 life cycles and reproduction in plants and animals. Y6 classification of plants, animals and micro-organisms with reasons based on characteristics.	Revisit habitat and food-chain language before introducing classification, reproduction and microorganism vocabulary.
Plants	Y1-Y3	Y1 common wild and garden plants, deciduous and evergreen trees, and basic plant structures. Y2 seeds and bulbs; water, light and suitable temperature for healthy growth. Y3 functions of plant parts, requirements for growth, water transportation, pollination, seed formation and seed dispersal.	Plant-part vocabulary progresses into functional and reproductive vocabulary such as stamen, pollen, pollination and seed dispersal.
Materials	Y1, Y2, Y5	Y1 objects and materials, everyday materials and simple properties. Y2 suitability of materials and changing shape by squashing, bending, twisting and stretching. Y5 properties including hardness, solubility, transparency and conductivity; dissolving, solutions, separating mixtures and reversible/irreversible changes.	Vocabulary builds from observable properties to evidence-based property testing and change-of-state/reaction language.
Rocks / States of matter	Y3, Y4	Y3 rocks are compared by appearance and properties; fossils and soils are introduced. Y4 materials are grouped as solids, liquids or gases; changes of state, evaporation, condensation and the water cycle are developed.	Distinguish everyday material words from specialist vocabulary such as fossilisation, sediment, evaporation, condensation and melting point.
Electricity	Y4, Y6	Y4 common appliances, simple series circuits, cells, wires, bulbs, switches, buzzers, conductors and insulators. Y6 voltage, component function and recognised symbols in circuit diagrams.	Revisit circuit vocabulary before pupils explain voltage, current, component function and circuit diagrams.
Earth and space / seasonal change	Y1, Y5	Y1 changes across the four seasons, weather and day length. Y5 movement of Earth, Moon and planets; spherical bodies; Earth rotation to explain day and night and apparent movement of the Sun.	Seasonal language in Year 1 provides foundations for later space vocabulary including orbit, rotation, axis and Solar System.
Sound and light	Y3, Y4, Y6	Y3 light, reflection, sun safety and shadows. Y4 sound production, vibrations through a medium, pitch, volume and distance from sound source. Y6 light travelling in straight lines, seeing, shadows and ray diagrams.	Move from observable light and sound words to explanatory vocabulary such as vibration, medium, ray diagram and refraction.
Forces, magnets, evolution and inheritance	Y3, Y5, Y6	Y3 movement on surfaces and magnetic forces. Y5 gravity, air resistance, water resistance, friction, levers, pulleys and gears. Y6 fossils, offspring variation, adaptation and evolution.	Progress from practical force/magnet words to mechanisms, resistance, inheritance, variation, adaptation and evolution.

Year-group learning overview

Nursery Sky

Understanding the World science questions from the class curriculum map. Learning statements and vocabulary support practical exploration, play and adult interaction.

Half term	Science question	Learning to develop
Autumn 1	What can I see, hear, smell, taste and touch?	Explore objects and natural materials through the senses; communicate what is noticed.
Autumn 2	What happens when I shine a torch?	Explore torch light and notice bright and dark areas.
Spring 1	What happens to ice when it gets warm?	Handle ice with adult support and notice melting in warmth.
Spring 2	What is changing outside in spring?	Notice new leaves, flowers and changes outdoors.
Summer 1	What does a plant or animal need?	Help care for a plant or animal and notice water, food and shelter.
Summer 2	What happens when I pour or mix sand and water?	Explore pouring, mixing and the feel of wet and dry sand.

Suggested words to model and revisit: see, hear, smell, taste, touch, light, dark, ice, warm, melt, leaf, flower, seed, plant, animal, water, sand, wet, dry.

Throughout the year: Revisit the local natural world and seasonal changes. Encourage noticing, questions, comparisons and care for living things. Adults model vocabulary and support children to communicate discoveries through talk, gestures, photographs and drawings.

Nursery Ocean

Understanding the World science questions from the class curriculum map. Learning statements and vocabulary support practical exploration, play and adult interaction.

Half term	Science question	Learning to develop
Autumn 1	How do my senses help me find out?	Name body parts and use the senses to describe and compare.
Autumn 2	Why is dark necessary?	Explore light and darkness; talk about night, rest and familiar animals.
Spring 1	How can we make ice melt faster or slower?	Compare melting in different places and describe what happens.
Spring 2	What happens to frogspawn?	Observe frogspawn and pictures of stages in the frog life cycle.
Summer 1	What do living things need to grow?	Care for plants and talk about animals' needs for growth.
Summer 2	What helps something float?	Explore floating and sinking with suitable objects; compare results.

Suggested words to model and revisit: senses, light, dark, freeze, melt, faster, slower, frogspawn, tadpole, frog, grow, plant, animal, food, water, shelter, float, sink.

Throughout the year: Revisit the local natural world and seasonal changes. Encourage noticing, questions, comparisons and care for living things. Adults model vocabulary and support children to communicate discoveries through talk, gestures, photographs and drawings.

Reception

Understanding the World science questions from the class curriculum map. Learning statements and vocabulary support practical exploration, play and adult interaction.

Half term	Science question	Learning to develop
Autumn 1	What lives on my hands and how does it get there?	Explore handwashing and how germs can spread using a simple model; explain why clean hands matter.
Autumn 2	Can you catch a shadow?	Explore how light and objects create shadows; describe changes.
Spring 1	How do animals keep warm when it's freezing and cool when it's hot? How do germs travel through the air when we cough?	Compare animal features that help in hot and cold places; explore cough hygiene through a simple model.
Spring 2	How did Beatrix Potter use her 'Scientist eyes' to look closely at nature?	Look closely at plants and animals, draw observations and describe similarities and differences.
Summer 1	How do living things grow and change?	Observe plants and animal life cycles; explain changes using observations.
Summer 2	What is happening to my ice lolly? What lives beneath the waves? What changes when summer arrives?	Explore melting, sea creatures and their habitats; compare summer with earlier seasons.

Suggested words to model and revisit: germ, clean, wash, spread, light, shadow, warm, cool, observe, compare, nature, grow, change, life cycle, melt, habitat, season, summer.

Throughout the year: Revisit the local natural world and seasonal changes. Encourage noticing, questions, comparisons and care for living things. Adults model vocabulary and support children to communicate discoveries through talk, gestures, photographs and drawings.

Ready for Year 1: use observation and talk to name, compare and explain plants, animals, body parts, materials and seasonal changes.

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Year 1

Autumn: Seasonal changes; The human body; Materials; Seasonal changes | Spring: Planting A; Animals; Caring for the planet; Seasonal changes / Planting B | Summer: Plants; Planting C; Growing and cooking; Seasonal changes / Consolidation

Substantive knowledge: Animals, including humans: Common animals; carnivores/herbivores/omnivores; animal structures; human body and senses. Plants: Common wild and garden plants; basic plant structures. Materials: Objects and materials; everyday materials and simple properties. Earth and space / seasonal change: Seasonal weather and day length. Sustainability: Caring for the planet; growing and cooking.

Disciplinary knowledge focus: Comparative test; Identifying, grouping and classifying; Observation over time; Observation over time / consolidation; Pattern seeking; Research; Sustainability

Vocabulary: body, senses, animal, mammal, bird, amphibian, reptile, carnivore, herbivore, omnivore, plant, leaf, stem, roots, flower, seed, deciduous, evergreen, material, wood, plastic, glass, metal, solid, liquid, waterproof, weather, season, rainfall, daylight, recycle, reuse

Year 2

Autumn: Animals needs for survival; Humans; Materials; Plastic | Spring: Plants: light and dark; Living things and their habitats; Plants: light and dark | Summer: Plants: bulbs and seeds; Growing up; Wildlife

Substantive knowledge: Animals, including humans: Offspring and adults; basic survival needs; exercise, diet and hygiene. Living things and habitats: Living, dead and never alive; habitats and microhabitats; simple food chains. Plants: Seeds and bulbs; water, light and temperature for healthy growth. Materials: Suitability of materials; changing shape by squashing, bending, twisting and stretching. Sustainability: Plastic and wildlife.

Disciplinary knowledge focus: Comparative test; Comparative test / observation over time; Identifying, grouping and classifying; Observation over time; Pattern seeking; Research; Sustainability

Vocabulary: shelter, exercise, healthy diet, hygiene, offspring, life cycle, habitat, microhabitat, food chain, living, dead, never alive, sunlight, compost, bulb, shoot, natural material, human-made material, recycle, flexible, rigid, waterproof, wildlife

Year 3

Autumn: Skeletons; Movement; Nutrition and diet; Food waste; Rocks | Spring: Fossils; Soils; Light; Plants A; Biodiversity | Summer: Forces; Magnets; Plants B

Substantive knowledge: Animals, including humans: Nutrition; skeletons and muscles. Plants: Functions of plant parts; requirements for life and growth; water transportation; pollination, seed formation and dispersal. Rocks / states of matter: Rocks, fossils and soils. Sound and light: Light sources, reflection, sun safety and shadows. Forces and evolution: Movement on surfaces and magnetic forces.

Disciplinary knowledge focus: Comparative test; Fair test; Identifying, grouping and classifying; Observation over time; Observation over time / comparative test; Pattern seeking; Research; Sustainability

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Vocabulary: skeleton, skull, ribcage, muscle, joint, nutrition, balanced diet, roots, stem, stamen, pollen, pollination, seed dispersal, granite, sandstone, fossil, soil, force, friction, magnet, attract, repel, light source, reflection, shadow, biodiversity

Year 4

Autumn: Group and classify living things; Data collection A; States of matter; Sound | Spring: Electricity; Data collection C; Habitats; Energy / Deforestation; Consolidation | Summer: The digestive system; Food chains; Data collection B

Substantive knowledge: Animals, including humans: Digestive system; teeth; food chains. Living things and habitats: Grouping living things; classification keys; environmental change. Rocks / states of matter: Solids, liquids and gases; heating, cooling, evaporation and condensation in the water cycle. Electricity: Appliances; simple series circuits; switches; conductors and insulators. Sound and light: Vibrations, pitch, volume and distance from sound source.

Disciplinary knowledge focus: Consolidation; Fair test; Identifying, grouping and classifying; Observation over time; Observation over time / fair test; Pattern seeking; Research; Sustainability

Vocabulary: digestive system, oesophagus, stomach, intestine, incisors, canines, molars, producer, consumer, prey, predator, vertebrate, invertebrate, classification key, solid, liquid, gas, evaporation, condensation, vibration, pitch, volume, circuit, conductor, insulator, energy, sustainable

Year 5

Autumn: Forces; Space; Properties of materials; Consolidation | Spring: Global warming; Animals including humans; Life cycles; Reproduction A; Plastic pollution | Summer: Reversible and irreversible changes; Reproduction B

Substantive knowledge: Animals, including humans: Human development to old age. Living things and habitats: Life cycles and reproduction in plants and animals. Materials: Properties; dissolving and solutions; separating mixtures; reversible and irreversible changes. Earth and space / seasonal change: Earth, Sun, Moon and planets; rotation, day and night. Forces and evolution: Gravity, air resistance, water resistance, friction, levers, pulleys and gears.

Disciplinary knowledge focus: Comparative test; Consolidation; Fair test; Identifying, grouping and classifying; Observation over time; Pattern seeking; Research; Sustainability

Vocabulary: force, gravity, air resistance, water resistance, lever, gear, pulley, Solar System, orbit, rotate, axis, properties, dissolve, soluble, mixture, filtering, evaporation, reversible, irreversible, life cycle, metamorphosis, reproduction, puberty, gestation, global warming, plastic pollution

Year 6

Autumn: Living things and their habitats; Electricity; Renewable energy; Consolidation | Spring: Light; The circulatory system; Diet, drugs and lifestyle; Light pollution | Summer: Variation; Adaptations; Fossils; Themed projects

Substantive knowledge: Animals, including humans: Circulatory system; impact of diet, exercise, drugs and lifestyle; transport of nutrients and water. Living things and habitats: Classification of plants, animals and micro-organisms; reasons for classification. Electricity: Voltage; component function; circuit diagrams and

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recognised symbols. Sound and light: Light travelling in straight lines; seeing, shadows and ray diagrams. Forces and evolution: Inheritance, variation, adaptation and evolution.

Disciplinary knowledge focus: Consolidation; Fair test; Identifying, grouping and classifying; Observation over time / comparative test; Pattern seeking; Project enquiry; Research; Sustainability

Vocabulary: classification, microorganism, bacteria, virus, fungi, voltage, current, series circuit, ray diagram, refraction, circulatory system, arteries, veins, capillaries, oxygenated blood, drug, addiction, inheritance, variation, adaptation, evolution, natural selection, renewable energy, light pollution

Source note: This document adapts White Rose Science September 2024 curriculum progression, enquiry mapping, working scientifically skills mapping and vocabulary progression into the Shawclough curriculum framework format.