

Progression in Working Scientifically							
	EYFS	Year 1	Expected Standard Year 2	Year 3	Expected Standard Year 4	Year 5	Expected Standard Year 6
Enquire	Ask simple questions about the world around them.	Ask simple questions and with help find out answers to them. Using sentence starters: Why What How	Ask simple questions and recognising that they can be answered in different ways. Using the question grid e.g. How does Why would What if etc.	Be guided to ask more relevant questions and become aware of different types of scientific enquiries to answer them. Engage in simple practical enquiries, comparative, and fair tests they have had some help with setting up.	Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative, and fair tests.	Plan, with support different types of scientific enquiries to answer questions, begin to recognise variables and how to control these where necessary. Use test results to make predictions for other comparative and fair tests.	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Use test results to make predictions to set up further comparative and fair tests.
Explore	Know about similarities and differences in relation to places, objects, materials and living things. They make observations of animals and plants	Observe, using simple equipment (hand lenses, test tubes, pipettes) Perform simple tests. Can identify and classify with support.	Observe closely, using simple equipment (hand lenses, pipettes, magnifying glasses, IPADS to zoom in and out). Perform simple tests using simple measurements. Can identify and classify within groups and independently.	Make careful observations and begin to realise the need for more accurate measurements eg mm instead of cm using standard units, using a range of equipment, including thermometers.	Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	Take measurements, using a range of scientific equipment, measuring jugs, scales, thermometers, newton metres, data loggers with increasing accuracy. Become aware of precision and the need to obtain similar results, taking repeat readings when appropriate.	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
Record	Drawn or verbally record.	Know that gathering and recording data can help in answering questions; with support, gather and record data. Using drawings, tallies, tables, pictograms, bar chart, explanations	Gather and record data to help in answering questions. Using drawings, explanations, tables, tallies, bar chart, pictogram, venn diagrams	Gather and record data in different ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams and tables; develop use of bar charts and keys with appropriate support.	Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	Record data and results using scientific diagrams and labels, classification keys, tables, bar graphs and line graphs. Become familiar with and begin to develop use of scatter graphs and line graphs.	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs,
Explain	Explain why some things occur, and talk about changes. 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.	Use their observations to try to answer their questions.	Use their observations and ideas to suggest answers to questions.	Report on findings from enquiries, including oral and written explanations, displays or presentations. Use results to draw simple conclusions. Identify differences, similarities or changes related to simple scientific ideas. Use straightforward scientific evidence to answer questions.	Report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to	Report and present findings from enquiries, including conclusions and explanations of results in oral and written forms such as displays and other presentations. Identify scientific evidence that supports their ideas. Become aware of simple causal relationships and be able to explain some. Begin to develop understanding that not all results can be trusted.	Report and present findings from enquiries, including conclusions, causal relationships and explanations of, and degree of trust in, results in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.

					answer questions or to support their findings.		
Vocab		Experience, observe, changes, patterns, grouping, sorting, classifying, compare, identify (name), data, measure, record, equipment, questions, test, investigate, explore, magnifying glass / hand lens, same, different	Develop, enquiry, practical enquiry, fair test, comparative test, relationships, conclusion, accurate, thermometer, data logger, estimate, data, diagram, key (identifying), table, chart, bar chart, results, predictions, explanation, reason, similarity, difference, question, evidence, information, findings, criteria, values, properties, characteristics	Variables, evidence, justify, accuracy, precision, scatter graphs, bar graphs, line graphs, argument (science), causal relationship			
Programme of Study Progression							
Biology	Animals, including humans Use all their senses in hands-on exploration of natural materials. (Nursery - Humans) Name and describe people who are familiar to them. (Reception - Humans)	Animals, including humans Pupils should be taught to: 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.	Animals, including humans Pupils should be taught to: Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Animals, including humans Pupils should be taught to: 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.	Animals, including humans Pupils should be taught to: 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.	Animals, including humans Pupils should be taught to: describe the changes as humans develop to old age	Animals including humans Pupils should be taught to: 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.
Vocab	sight, smell, feel, touch, taste, hearing, mum, dad, brother, sister, gran, grandad, nan,	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	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)	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	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	Puberty – the vocabulary to describe sexual characteristics	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle

Biology	<p>Plants Plant seeds and care for growing plants. (Nursery – Plants)</p> <p>Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants)</p> <p>Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants)</p> <p>Explore the natural world around them. (Reception – Living things and their habitats)</p> <p>Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats).</p>	<p>Plants Pupils should be taught to: Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Plants Pupils should be taught to: Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Plants Pupils should be taught to: Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			
Vocab	<p>water, care, light, soil, grow, seeds, bulbs, sunlight, dark,</p>	<p>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</p>	<p>As year 1 light, shade, sun, warm, cool, water, grow, healthy</p>	<p>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)</p>			
Biology	<p>Living things and their habitats Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants)</p> <p>Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants)</p> <p>Explore the natural world around them. (Reception – Living things and their habitats)</p>		<p>Living things and their habitats Pupils should be taught to: Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</p>		<p>Living things and their habitats Pupils should be taught to: Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Living things and their habitats Pupils should be taught to: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.</p>	<p>Living things and their habitats Pupils should be taught to: Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. Evolution and inheritance Pupils should be taught to:</p>

	Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats).		Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.				Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Vocab	life cycle, baby, cub, pup, larva, grow, adult, nest, safe, strong		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	Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings	Classification, amphibians, kingdom, birds, invertebrates, insects, vertebrates, flowering, micro-organisms, non-flowering, arachnids, mammals, branching key, reptiles
Physics	<p>Earth and Space Explore the natural world around them. (Reception - Earth and space)</p> <p>Describe what they see, hear and feel whilst outside. (Reception - Earth and space)</p> <p>Seasonal changes Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans)</p> <p>Explore the natural world around them. (Reception – Seasonal changes)</p> <p>Describe what they see, hear and feel whilst outside. (Reception – Seasonal changes)</p>	<p>Seasonal changes Pupils should be taught to: Observe changes across the 4 seasons. Observe and describe weather associated with the seasons and how day length varies.</p>				<p>Earth and Space Pupils should be taught to: Describe the movement of the Earth and other planets relative to the sun in the solar system. Describe the movement of the moon relative to the Earth. Describe the sun, Earth and moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	

	Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)						
Vocab	seasons, change, cold, hot, windy, rain, snow, leaves, bark,	Weather (sunny, rainy, windy, snowy etc. Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length				Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets	
Physics	<p>Sound Explore how things work. (Nursery - Sound)</p> <p>Describe what they see, hear and feel whilst outside. (Reception - Sound)</p> <p>Explore how things work. (Nursery - Light)</p> <p>Talk about the differences in materials and changes they notice. (Nursery - Light)</p> <p>Describe what they see, hear and feel whilst outside. (Reception - Light)</p>			<p>Light Pupils should be taught to: Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.</p>	<p>Sound Pupils should be taught to: 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.</p>		<p>Light Pupils should be taught to: Recognise that light appears to travel in straight lines. 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. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
vocab	dark, light, quiet, loud, shadow, volume			Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation		As for Year 3 - Light, plus straight lines, light rays
Physics	<p>Forces Explore how things work. (Nursery - Forces)</p> <p>Explore and talk about different forces they can feel. (Nursery - Forces)</p> <p>Talk about the differences between materials and changes they notice. (Nursery - Forces)</p>			<p>Forces and magnets Compare how things move on different surfaces. Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others.</p>		<p>Forces Pupils should be taught to: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p>	

	Explore the natural world around them. (Reception - Forces) Describe what they see, hear and feel whilst outside. (Reception - Forces)			Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.		Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	
Vocab	push, pull, melt, freeze, lift, tinker, on, off, twist, tight, loose.			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	
Physics	Explore how things work. (Nursery - Electricity)				Electricity Pupils should be taught to: Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.		Electricity Pupils should be taught to: Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram.

Vocab	tinker, on, off, power				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		Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage
Chemistry	<p>Properties and changes of materials Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials)</p> <p>Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials)</p> <p>Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials)</p>	<p>Everyday materials Pupils should be taught to: Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Uses of everyday materials Pupils should be taught to: Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Rocks Pupils should be taught to: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.</p>	<p>States of matter Pupils should be taught to: Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Properties and changes of materials Pupils should be taught to: 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. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	

Vocab	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, card/cardboard, hard, soft, stretchy, stiff, bendy, floppy, waterproof, ice	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	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	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	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	
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