



Richard Bonington Primary School
Science Curriculum- Progression map

Working Scientifically Skills to be taught alongside other areas						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> • Can talk about some of the things they have observed such as plants, animals, natural and found objects. • Talks about why things happen and how things work. • Shows care and concern for living things and the environment. • Explore and make observations of the world around them, • Ask questions about what they have observed, • Suggest possible answers to questions, • Looks closely at similarities, differences, patterns and change, • Group together similar objects 	<ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways, • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions, • gathering and recording data to help in answering questions. 	<ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them, • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions, • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions, • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary, • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests, • reporting and presenting 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, • identifying scientific evidence that has been used to support or refute ideas or arguments. 			

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biology	<p>Explore the natural world around them.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Recognise some environments that are different to the one in which they live.</p> <p>Understand the effect of changing seasons on the natural world around them.</p>	<ul style="list-style-type: none"> Know and name a variety of common wild and garden plants, including deciduous and evergreen trees, Know and name the petals, stem, leaves and root of a plant. Know and name the roots, trunk, branches and leaves of a tree. 	<ul style="list-style-type: none"> Know and explain 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>Living things and their habitats</p> <ul style="list-style-type: none"> Identify and name a variety of plants and animals in their habitats, including microhabitats. 	<ul style="list-style-type: none"> 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 (light, water, air, 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, through the stem, know the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways. Use classification keys to help group, identify and name a variety of living things in their local and wider environment. Know that environments can change and that this can sometimes pose dangers to living things. 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> 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.
Vocabulary progression.		<p>Wild plant, garden plant, deciduous, evergreen, dandelion, buttercup, daisy, rose, sunflower.</p> <p>Flower, stem, petal, leaf, fruit, seed, bulb, root, bark, trunk, crown, soil</p>	<p>As for Y1 +</p> <p>light, shade, sun, warm, cool, water, grow, healthy, germinate, shoot</p>	<p>As for Yr 1 and 2. +</p> <p>Photosynthesis, pollen, pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), fertilization, evaporation, life cycle</p>		<p>asexual, plantlets, runners, bulbs, cuttings, germination, pollination, dispersal, spores, anther, stigma, style, ovule, stamen, pistil, fertilisation, - move these words to plants</p>	<p>Flowering and non-flowering plants</p>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Animals including humans.</p>	<p>Talk about members of their immediate family and community.</p> <p>Name and describe people who are familiar to them.</p> <p>Recognise some environments that are different to the one in which they live</p>	<ul style="list-style-type: none"> Know and name a variety of common animals including fish, amphibians, reptiles, birds and mammals, describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Know and classify animals by what they eat (carnivores, herbivores, and omnivores) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<p>Know the basic stages in a life cycle for animals, including humans.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Know why exercise, a balanced diet and good hygiene are important for humans.</p> <p>Living things and their habitat Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>	<ul style="list-style-type: none"> 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. Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. humans and some other animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> Identify and name the parts of the human digestive system. Identify the different types of teeth in humans and their simple functions. Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing). Use and construct food chains, identifying producers, predators and prey. 	<ul style="list-style-type: none"> describe the changes as humans develop to old age. describe the differences in the life cycles of a mammal, Know that humans go through stages of development; they begin as fertilized eggs and then develop into embryos before developing into babies; At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. as adults develop into old age; they experience changes in their body which require them to move more carefully and rest more frequently. <p>Living things and their habitats</p> <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. <p>Living things and their habitats Describe the ways in which nutrients and water are transported within animals, including humans.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Vocabulary progression.</p>	<p>Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves</p> <p>Parts of the body including those linked to PSHE teaching</p> <p>Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue</p> <p>Names of animals experienced first-hand from each vertebrate group</p> <p>mammal, reptile, amphibian, fish, bird.</p> <p>carnivore, herbivore, omnivore,</p>	<p>As Y1 +</p> <p>Adult, develop, young, offspring, baby, toddler, child, teenager,</p> <p>live young, hatchling, hatch, larvae, eggs, life cycle, egg, tadpole, froglet,</p> <p>air, oxygen, breathe, water, food, diet, survive, healthy, active, heart rate, muscle, blood, healthy, diet, nutrition, balanced, food, fruit, vegetable, dairy, carbohydrates, protein, sugar, fat, hygiene, germs, illness, disease,</p>	<p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, herbivore, carnivore, omnivore, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints, voluntary, involuntary.</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars,</p>	<p>Gestation, adolescence, puberty, embryo, hygiene, menstruation, penis, scrotum, testicles, hormones, ovaries, vagina, vulva, fallopian tube</p>	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle</p>	

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Living things and their habitats.</p>	<p>Explore the natural world around them.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Recognise some environments that are different to the one in which they live.</p>	<p>Plants identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <ul style="list-style-type: none"> Identify and describe the basic structure of a variety of common flowering plants, including trees. <p>Animals, including humans</p> <ul style="list-style-type: none"> 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, <p>Seasonal change</p> <ul style="list-style-type: none"> Observe changes across the four seasons. 	<ul style="list-style-type: none"> Explore, compare and classify things that are living, dead, and things that have never been alive, know how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other, identify and name a variety of plants and animals in their habitats, including micro-habitats, describe how animals obtain their food from plants and other animals, Know about and explain a simple food chain. <p>Animals including humans. Know that animals, including humans, have offspring which grow into adults.</p>	<p>Plants</p> <ul style="list-style-type: none"> explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Investigate the way in which water is transported in plants. 	<ul style="list-style-type: none"> Know that living things can be grouped in a variety of ways, Know how to 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>Animals, including humans construct and interpret a variety of food chains, identifying producers, predators, and prey.</p>	<ul style="list-style-type: none"> Know and describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird, Know the process of reproduction in some plants and animals. 	<ul style="list-style-type: none"> 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, Know how to use and make a classification key to help group, identify and name a variety of living things in their local and wider environment give reasons for classifying plants and animals based on specific characteristics. <p>Evolution and inheritance Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) Know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Vocabulary progression.</p>			<p>Living, dead, never been alive suited, basic needs, food chain, shelter, move, feed</p> <p>Names of local habitats e.g. pond, woodland</p> <p>Names of micro-habitats e.g. under logs, in bushes etc.</p>		<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, prey, predator, food chain, producer, consumer</p>	<p>Life cycle, reproduce, sexual/asexual, sperm, fertilises, egg, live young, metamorphosis, larva, gestation asexual, plantlets, runners, bulbs, cuttings, germination, pollination, dispersal, spores, anther, stigma, style, ovule, stamen, pistil, fertilisation,</p>	<p>Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering/flowering, arthropod, microorganism, bacteria, crustacean, myriapod, arachnid.</p>

Evolution and inheritance.						<p>Living things and their habitats Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<ul style="list-style-type: none"> 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.
	Vocabulary progression						<p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, habitat, survival, variation, fossil, cells</p>

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Physics	Forces			<p>Uses of everyday materials</p> <ul style="list-style-type: none"> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> compare how things move on different surfaces, notice that some forces need contact between two objects, but magnetic forces can act at a distance, observe how magnets attract or repel each other and attract some materials and not others, 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 two poles, predict whether two magnets will attract or repel each other, depending on which poles are facing. 		<ul style="list-style-type: none"> 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 recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
		Vocabulary progression			<p>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</p>		<p>As Y3 + gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, buoyancy, force meter</p>

Light	Describe what they see, hear and feel whilst outside.	<p>Animals, including humans identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Materials Know about the properties of everyday materials.</p>		<ul style="list-style-type: none"> • Know that they need light to see things, • Know that dark is the absence of light, • know that light is reflected from surfaces, • Know that light from the sun can be dangerous and that there are ways to protect their eyes, • Know that shadows are formed when the light from a light source is blocked by a solid object, • Can explain the way that the size/shape of a shadow changes. 		<p>Properties and changes of materials Compare and group materials based on their properties, e.g. hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p>	<ul style="list-style-type: none"> • know 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.
Vocabulary progression				<p>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.</p>			<p>As Y3 + light waves, visible spectrum, refraction</p>
Sound	Describe what they see, hear and feel whilst outside.	<p>Animals, including humans</p> <ul style="list-style-type: none"> • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 			<p><u>Sound:</u></p> <ul style="list-style-type: none"> • know how sounds are made, associating some of them with something vibrating, • know that vibrations from sounds travel through a medium to the ear, • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases. 		
Vocabulary progression					<p>Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation, sound wave, ear</p>		

Electricity					<p><u>Electricity:</u></p> <ul style="list-style-type: none"> • 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. 		<p><u>Electricity:</u></p> <ul style="list-style-type: none"> • 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.
Vocabulary progression					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		As Y4 + circuit diagram, circuit symbol, voltage, flow, current, component,
Earth and space.	<p>Seasonal Change Talk about the weather Know the names of the four seasons and know Name some changes caused by seasons</p>	<p>Seasonal Changes:</p> <ul style="list-style-type: none"> • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies 				<p><u>Earth and Space:</u></p> <ul style="list-style-type: none"> • 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. 	
Vocabulary progression						Earth, Sun, Moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, spherical, solar system, rotates, star, orbit, planets, rotate, axis, satellite	

Seasonal change	<p>Seasonal Change Talk about the weather. Know the names of the four seasons and know Name some changes caused by seasons.</p>	<ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies 					
Vocabulary Progression		<p>Spring, summer, autumn, winter, seasonal change, temperature, thermometer, rain gauge, daylight</p> <p>Weather words- snow, rain, wind, fog, storm, weather forecast, cold, sleet, frost</p>					

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Chemistry	<p>Explore the world around them</p> <p>Describe what they see, hear and feel whilst outside.</p>	<ul style="list-style-type: none"> Know the difference between the name of 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. 	<ul style="list-style-type: none"> 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><u>Rocks:</u></p> <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases know 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). Be able to give examples. identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<ul style="list-style-type: none"> 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 know that some changes result in the formation of new materials, and that this kind of change is not usually reversible. 	

	Vocabulary progression		<p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay,</p> <p>hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through</p>	<p>As Y 1 +</p> <p>opaque, transparent and translucent, reflective, nonreflective, flexible, rigid</p> <p>Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching, flexible</p> <p>Recycle, pollution</p>		<p>As Y1 and 2 +</p> <p>Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p>	<p>As Yr 1,2,4 +</p> <p>Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material</p>	
	Rocks				<ul style="list-style-type: none"> 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. 			
	Vocabulary progression				<p>Rock, stone, pebble, boulder, layers, hard, soft, soil, fossil, marble, chalk, granite, sandstone, slate, soil, permeable/impermeable, hard/soft, durable, dense. Sedimentary, igneous, metamorphic, natural, manmade, palaeontology</p>			