Wentworth Primary School
Key Skills & Knowledge Progression Map
'Striving for Excellence'
Science

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	ELG: Listening, Attention and Understanding Children at the expected level of development will: - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; -Make comments about what they have heard and ask questions to clarify their understanding; -Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. ELG: Speaking Children at the	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: 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.		During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: 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		During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: 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.	

	expected level of development will: -Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; -Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; - Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.			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.			
<u>Plants/Living things and their habitats</u>	ELG: The Natural World Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants; - Know some similarities and differences between	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	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	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	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	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	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

	the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;	of a variety of common flowering plants, including trees.	to grow and stay healthy. 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 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.	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.	local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things.	reproduction in some plants and animals.	microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.
<u>Animals including humans</u>	ELG: The Natural World Children at the expected level of development will:	Pupils should be taught to: identify and name a variety of common	Pupils should be taught to: notice that animals, including humans,	Pupils should be taught to: identify that animals, including	Pupils should be taught to: describe the simple functions of the basic	Pupils should be taught to: describe the changes as humans develop to old age.	Pupils should be taught to: identify and name the main parts of the

	- Explore the natural world around them, making observations and drawing pictures of animals and plants; - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; ELG: Managing Self Children at the expected level of development will: - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge; - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	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.	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.	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.	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.		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.
<u>Materials / States of Matter</u>	ELG: The Natural World Children at the expected level of development will: - Understand some important processes and changes in the natural world around	Pupils should be taught to: distinguish between an object and the material from which it is made	Pupils should be taught to: identify and compare the suitability of a variety of everyday materials, including		Pupils should be taught to: compare and group materials together, according to whether they are solids, liquids or gases	Pupils should be taught to: compare and group together everyday materials on the basis of their properties, including their	

	them, including the seasons and changing states of matter (water – ice – water vapour e.g. steam/clouds). ELG: Creating with Materials Children at the expected level of development will: - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories.	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.	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.		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.	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.	
<u>Light</u>				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.			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.
<u>Forces</u>				Pupils should be taught to: compare how things move on different surfaces		Pupils should be taught to: explain that unsupported objects fall towards the Earth	

				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.		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.	
<u>Electricity</u>					Pupils should be taught to: identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic		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

					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.		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.
<u>Other Areas Taught</u> *(Areas taught in just one year group)*	ELG: The Natural World Children at the expected level of development will: - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (water – ice – water vapour e.g. steam/clouds).	<u>Seasonal Changes</u> Pupils should be taught to: observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies.		<u>Rocks</u> 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	<u>Sound</u> 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	<u>Earth and Space</u> 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	<u>Evolution and Inheritance</u> Pupils should be taught to: 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

				that have lived are trapped within rock recognise that soils are made from rocks and organic matter.	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.	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.	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.
<u>Key Vocabulary</u>		senses: hear, smell, touch, taste, see animals: beak, wing, paw, feathers, claw, talons main body parts: head, neck, arms, elbows, legs, knees, face, ears, hair, mouth, teeth, abdomen, chest, shoulders, toes classification: herbivore, carnivore, omnivore, mammal, living, bird, fish, reptile, amphibian movement: fly, swim, crawl, run Plants plant, root, grow, branch,	Animals/Plants animals, plants senses health: illness, medicine, exercise, hygiene, healthy, diet, fit, nutrition, unhealthy diet life processes: survive, living, movement, respiration, growth, basic needs, reproduction, excretion, life process life cycles: offspring, life cycle, baby, child, teenager, adult, elderly Plants compost, sunlight, temperature, plant, tree, deciduous, evergreen	skeletal system: skeleton, muscle, bone, skull, ribs, spinal column, backbone, joints, sockets, femur, collarbone, humerus, ulna, radius, hip, pelvis, fibula, tibia, kneecap, shoulder blade, movement, support, protection, contract, relax classification: vertebrates, invertebrates, insects, minibeasts, mammals, reptiles, fish, birds, amphibians nutrition: food, growth, healthy, unhealthy, nutrition, exercise, balanced	teeth: canines, incisor, molars, premolars diet/digestion: carnivore, herbivore, omnivore, digestion, large intestines, oesophagus, peristalsis, predator, prey, producer, saliva, small intestines, stomach Living things and habitats: adaptation, pollution, habitats, environment, environmental change, classification: exoskeleton, carnivore, herbivore, omnivore, mammal, reptile, bird, amphibian, key, classify, vertebrate, invertebrate, pigeon, eagle, gull,	reproduction/stages of life: baby, toddler, child, teenager, adult, senior, death, puberty, fertilise, egg, sperm, conception, foetus, womb, birth, develop, grow, change classification: mammal, reptile, bird, fish, amphibian, insect life processes: nutrition, movement, respiration, reproduction, excretion, growth, sensitivity life cycles: egg, life cycle, womb, fertilisation, pollination, pollen, stamen, pistil, seed dispersal materials: change, reversible,	circulatory system: heart, heartbeat/heart rate, pulse, muscle, blood vessel, lungs, oxygen, oxygenated blood, deoxygenated blood, circulate, vein, artery diet: diet, exercise, unhealthy, harmful, healthy, nutrients, water, transport, hygiene, smoking, alcohol, overweight Living things and habitats: characteristics, classify, environment, compare, features, classification key, key, flowering plant, non-flowering plant classification: vertebrate, invertebrate,

		deciduous, evergreen, tree, flower, leaf, seed, stem, soil, trunk, to plant, to water types of plants: tree, daisy, birch, dandelion, fir tree, buttercup, wild plant, pine tree, fruit, flower, nettle, oak tree, holly, vegetable, weed, sycamore tree properties: fragile, heavy, light, hard, soft, smooth, rough, squidgy, waterproof, strong, weak, bumpy, stretchy, see-through, breakable materials: plastic, wood, rubber, fabric, metal, brick, rock, glass, paper, material, cotton, wool, fleece seasonal changes: autumn, spring, winter, summer, seasons, grow, new life, year, change, tree, plant, shadow	parts of a plant: flower, roots, stem leaf, bulb, seed, seedling Living things and habitats: alive, conditions, adapted, animals, plants, living, dead, survive, basic needs, life process, food chain classification: carnivore, herbivore, omnivore habitats: woodland forest, jungle, polar region, desert, mountain, habitat, microhabitat properties: fragile, heavy, light, hard, soft, smooth, rough, squidgy, waterproof, strong, weak, bumpy, stretchy, see-through, breakable materials: plastic, wood, rubber, fabric, metal, brick, rock, glass, paper, material, cotton, wool, fleece	diet, sugar, fruit, vegetables, protein, carbohydrates, fat, dairy, vitamins, minerals Plants vegetable, plant reproduction: pollen, pollination, pollinators, formation, dispersal, reproduce parts of a plant: root, branch, seed, flower, leaf, seedling, stem, bulb, fruit, flower, blossom, trunk needs of a plant: compost, nutrients, grow, air, light, soil rocks: rocks, soils, stone, pebbles types of rock: slate, marble, chalk, granite, sandstone, clay properties: hard, soft, permeable, appearance, physical properties, acid rock formation: sedimentary, metamorphic, igneous, magma, bedrock, fossil forces and magnets:	minibeast, insect life processes: movement, respiration, growth, reproduction, excretion, nutrition, sensitivity states of matter: temperature, group, property, compare, particle, thermometer, research, change, degrees Celsius, observe states of matter: solid, liquid, gas, state of matter, carbon dioxide, oxygen, helium, natural gas, air processes: solidify, heat, measure, condensation, boiling, cool, condense, evaporation, evaporate, melt/melting, freeze/freezing water cycle: water cycle, runoff, precipitation, collection, condensation, evaporation, droplet electricity: appliance, battery, conductor, circuit,_ components, current, electrical, insulator,	irreversible, saturation, insulation states of matter: solid, liquid, gas properties: flexible, soluble, insoluble, durable, thermal, magnets, magnetic, permeable, absorbent processes: dissolving, evaporating, sieving, filtration, heat, boiling, condensing, evaporation, freezing, melting, chemical change, physical change forces: gear, lever, pull, newton meter, surface area, push, pull, movement, grip, contact, streamlined types of force: repel, upthrust/buoyancy, friction, air resistance, gravity, drag Earth and space: day, month, year, gravity, shadow, time zones, revolve, orbit, spin, rotate, axis, reflect solar system: Neptune, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Earth,	exoskeleton, vascular,_ non-vascular, taxonomy, herbivore, carnivore, omnivore, mammal, reptile, amphibian, bird, pigeon, eagle, seagull, fish microorganisms: microorganism, bacteria, virus, fungi evolution: environment, gene, natural selection, organism, evolution, change over time, species, population, features, trait, inherited, characteristics, reproduce, offspring, variation, mutation, survive, survival of the fittest, adaptation electricity: appliance, battery, conductor, circuit, components, current, electrical, insulator, mains power, pylon, renewable energy, non-renewable energy light: dark, absence of light, luminous scattering, absorption, refraction, travel, direction, straight lines,

		weather types: sun, snow, rain, hail, wind temperature: cold, hot, warm		contact, non-contact, iron, force, pull, push, magnet, poles, attract, repel, magnetic, non-magnetic, metal, stronger, weaker, movement, bigger, smaller force light: dark, absence of light, luminous, travel, reflection, reflect, shadow, see, eyes, mirror, direction, straight lines light source: torch, sunlight, light source properties: opaque, translucent, transparent, reflective, block	mains power, portable, pylon, switch sound: vibrate, vibration, travel, sound, source, tension, particle, air parts of the ear: pinna, cochlea, eardrum, ear volume: quiet, loud, soft, loudness, volume, mu_e, faint, noise pitch: pitch, high, low	Sun, Moon, planet, star, space, solar system phases of the Moon: waning gibbous, waxing gibbous, waxing crescent, waning crescent, last quarter, full Moon, first quarter, new Moon	bend, reflective, mirror, reflection, reflect, block, shadow, cast rainbow, colours see, eyes light source: torch, light beam, Sun, light, light source, light ray properties: opaque, translucent, transparent