Science knowledge and skills progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals (including humans)	Identifying the different animal groups Identifying carnivores, herbivores and omnivores Understanding the difference between omnivores, carnivores and herbivores Describe and compare the structure of a variety of common animals Identify the basic parts of the human body and associate body part with sense.	Understanding the difference between living, no longer living and never been alive. Understand the processes of reproduction and growth. (notice that animals, including humans have offspring which grow into adults) Understanding some things are living and some things are not Understanding the importance of a healthy lifestyle and how exercise can be part of this Understanding what humans need to survive Understanding that animals produce offspring	Classifying food groups Identifying the different food groups and their purposes Identifying different skeleton types and how to look after our bones Understanding the different muscle groups in the human body Understanding the difference between vertebrates and invertebrates Understanding how to look after a pet	Understanding the process of digestion Identifying different teeth and their uses	Understanding the life cycle of all animal types To understand that different animals have different life cycles Comparing the life cycle of a plant to that of an animal Understanding that the human body changes with age, including puberty	Identifying the main features of the human circulatory system Understanding how nutrients are transported around the body Understanding how lung capacity can be effected by a range of factors Investigating the effect of exercise on the human body Understanding what it means to keep our bodies healthy
Animals (including humans) Vocabulary	animal, common, fish, amphibian, reptile, bird, mammal, carnivore, herbivore, omnivore, structure, claw, hoof, paw, flipper, antlers, horn, tusks, skin, fur, feathers, scales, wings, beak, gills, fin, tentacles, pet, dog, cat, hamster, rabbit, horse, human body, head, neck, arm, shoulder, elbow, hand, finger, chest, back, leg, knee, waist, face, ear, eye, hair, mouth, teeth, tongue, smell, taste, see, hear, feel, touch, sound.	animal, human, parent, offspring, baby, adult, process, reproduce, growth, egg, chick, chicken, caterpillar, pupa, butterfly, spawn, tadpole, frog, lamb, sheep, toddler, child, teenager, elderly, needs, survival, water, food, air, shelter, exercise, physical activity, heart, muscles, nutrition, amount, food, hygiene, clean, germs, important.	animals, humans, nutrition, vitamins, minerals, amount, food groups, dairy, fruit and vegetables, plants, fibre, protein, carbohydrate, fats, occasional treat, digest, skeleton, muscles, repair, support, protect, protection, move, movement, contract, relax, contracted, relaxed, voluntary, involuntary, skeletal, smooth, cardiac, vertebrate, invertebrate, exoskeleton, endoskeleton, hydro-skeleton, joints, hinge joint, ball and socket joint, gliding joint, bones, skull, rib cage, collarbone, clavicle, ankle, talus, humerus, femur, tibia, fibula, phalanges, metacarpals, shoulder blade, jaw, backbone, vertebrae, carpals, hips, pelvis, patella, metatarsals, radius, ulna, sternum.	digestive system, function, Mouth, tongue, teeth, oesophagus, stomach, duodenum, small intestine, large intestine, pancreas, liver, rectum, anus, salivary glands, gallbladder, glands, enzymes, acid, teeth, decay, erode, incisors, canines, molars, premolars, carnivores, herbivores, food chain, producer, predator, prey.	life cycle, mammal, amphibian, insect, bird, life process, reproduction, reproduce, grow, height, weight, mass, develop, development, puberty, gestation period, naturalist, animal behaviourist, David Attenborough, Jane Goodall, egg, sperm, fetus, baby, toddler, child, teenager, adult, old age, development, decrease, growth, human, infancy, childhood, adulthood, adolescence, prenatal, changes, breasts, pubic hair, facial hair, body hair, genitals, muscular development, menstruation, metamorphosis, transform, larvae, pupa, nymph.	circulatory system, skeletal system, muscular system, digestive system, function, organs, heart, lungs, blood vessels, blood, circulation, skeletal, muscular, digestive, organs, parts, heart, lungs, blood vessels, aorta, atrium, ventricle, artery, vein, pulmonary, superior vena cava, inferior, pulmonic, aortic valve, trachea, bronchus, bronchiole, diaphragms, air sacs, alveoli, capillary, intercostal muscles and ribs, nutrients, nutrition, water, system, stomach, gall bladder, liver, small intestine, large intestine, pancreas, liver, kidneys, rectum, bladder, diet, exercise, transported, organs, vitamins, minerals, protein, fats, carbohydrates, water, fibre, pulse, heart rate, drugs, substances, smoking, legal, illegal, alcohol, harmful, healthy, lifestyle.
Seasons	Understanding weather changes Identifying signs of autumn/winter Understanding the 4 seasons Identifying signs of spring Recording seasonal change •Identifying signs of summer •Identify the impact of season upon day length					
Seasons Vocabulary	season, spring, summer, autumn, winter, month, event, leaves, conkers, conker husks, acorns, seeds, pine cones, berries, flowers, insects, birds, colours, nests, colder, hotter, cooler, warmer, snow, rain, sunshine, bright, dull, animals, adapt, cope, survive, hibernate, hibernation, migrate, migration.					
Living things and their habitats		Understanding that animals live in a habitat and that there can also be micro-habitats Understanding the concept of habitats Investigating a range of habitats (Y2) Understanding what living things need to survive Understanding that food can be part of a food chain between animals		Classifying living organisms by their characteristics (including vertebrate and invertebrate groups) Understanding the impact of habitat changes Identifying food chains (producer, predator, prey)		Understanding classification systems including Linnaeus Identifying organisms using the Linnaeus system Understanding there are three main types of micro-organism and where they might thrive Classifying animals by a range of characteristics (including micro-organisms, plants and animals)
Living things and their habitats vocabulary		living, dead, alive, never alive, healthy, life process, characteristics, movement, respiration, growth, sensitivity, reproduction, excretion, nutrition, natural, habitat, micro-habitat, urban, rural, woodland, pond, coast, ocean, tropical rainforest, arctic, desert, adapt, adaptation, needs, basic needs, conditions, shelter, depend, dependency, variety, obtain, food chain, food source, consumer, producer, predator, prey, herbivore, carnivore, omnivore.		classification, key, characteristics, organism, movement, respiration, growth, sensitivity, reproduction, excretion, nutrition, adapt, adaptation, needs, basic needs, conditions, environment, flowering, non-flowering, vertebrate, invertebrates, wildlife, shelter, depend, dependency, danger, dangerous, human impact, positive, negative, nature reserve, ecological, population, development, litter, deforestation, endangered, extinct, conservation.		classification, classify, key, characteristics, similarities, differences, organism, micro-organism, bacteria, fungus, mould, virus, microscopic, cell, eukaryote, nucleus, DNA, fungus, virus, bacteria, vertebrates, invertebrates, mammals, birds, amphibians, reptiles, fish, insects, arachnids, molluscs, crustaceans, annelids, plants, flowering, non-flowering, significance, Carl Linnaeus, pioneer, classification system, Linnaean, domain, kingdom, phylum, class, order, family, genus, species, subdivided.
Plants	Identifying the different parts of a plant •Identifying some commonly found plants •Observing different types of tree	Understanding the conditions needed for a plant to grow (water, light, temperature) Identifying the main parts of a plant Comparing different types of seed/bulb	Explore the requirements of plants for life and growth (air, light, water, nutrients and room to grow) and how they vary from plant to plant Recapping the parts of a plant and understand their functions Knowing which plants are flowering and non-flowering Identifying the different parts within a flower Understanding the function and purpose of each part of a plant Investigating different plants within the UK. Investigate the way in which water is transported within plants Understanding the function of a stem as a 'straw'.		Understanding the lifecycle of a plant Understanding how a plant reproduces	
Plants vocabulary	plant, tree, flower, flowering, bush, wild, garden, weed, common, deciduous, evergreen, structure, leaf, leaves, blossom, petal, root, bulb, seed, bean, trunk, branch, stem, habitat, soil, growth, fruit, vegetables.	plant, tree, flower, structure, leaf, leaves, blossom, petal, root, bulb, seed, trunk, branch, stem, habitat, growth, water, light, sunlight, temperature, healthy, germination, germinate, survive, survival, change, stages, bud, embryo, sprout, tunic, scales.	plant, tree, function, job, structure, flowering, flower, leaf, root, bulb, seed, trunk, branch, stem, life, growth, stages, water, light, nutrients, temperature, support, anchor, reproduction, transport, carbon dioxide, absorb, life cycle, pollination, fertilisation, seed formation, seed dispersal, petal, sepal, stamen, anther, filament, stigma, style, ovary, ovule, pollen, pollen tube.		life cycle, life process, reproduction, reproduce, grow, develop, seed, stem, root cuttings, tuber, bulb, sexual, asexual, gamete, cell, pollen, ovule, fusion, fertilisation, pollination.	
Materials	Understanding different properties of materials Investigating floating and sinking and which materials are waterproof Identifying natural and man-made materials Comparing strengths of materials	Identifying a range of materials based on their characteristics Understanding that some materials can be manipulated Investigating the strength of different materials Understanding different materials are suitable for different purposes Understanding what recycling means and involves Understanding the history behind some material discoveries				

Materials vocabulary	object, material, made, wood, plastic, glass, metal, water, rock, physical properties, common, same, different, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, opaque, transparent.	object, material, man-made, natural, raw material, wood, plastic, glass, metal, water, rock, physical properties, suitable, unsuitable, suitability, environmentally friendly, recycle, recycling, reuse, purpose, physical change, squash, bend, twist, stretch, develop, unusual.				
Rocks and Soils			Identifying the 3 main types of rock and understanding how they are formed Learning about fossilisation Recognise that soils are made from rocks and organic matter			
Rocks and Soils vocabulary			rock, stones, pebbles, physical properties, grains, crystals, fossils, trapped, fossilisation, trace fossil, body fossil, pressure, permeable, impermeable, semi-permeable, igneous, sedimentary, metamorphic, layers, form, formation, volcano, sea, seabed, buoyancy, durable, hard, soft, soil, organic matter, top soil, sub soil, base rock, additions, losses, translocations, transformations.			
Forces and Magnets			Compare how things move on different surfaces Understanding how magnets work Investigating different magnetic materials Experimenting with strengths of magnets Investigate how magnets attract or repel each other, depending on which poles are facing		Understanding and investigate the forces related to gravity, air resistance, friction and water resistance Creating and experimenting with a range of levers and pulleys as counter forces.	
Forces and Magnets vocabulary			force, push, pull, twist, contact force, non-contact force, friction, magnetic force, surface, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, distance, magnetic material, metal, iron, steel, poles, north pole, south pole.		forces, supported, unsupported, gravity, resistance, air resistance, water resistance, streamline, friction, surfaces, mechanisms, machine, lever, pulley, effect, impact, parachute, movement, Galileo Galilei, Isaac Newton, newton, newton meter, weight, mass.	
Light			Understanding how light travels Understanding the effect of UV light on our eyes Identifying reflective materials Understanding how shadows are formed and how we can change the shape and size of them.			Understanding how we see and that light travels in straight lines Understanding refraction Understanding the concept of a spectrum of colour and how it can be split Investigating how filters can impact the colour of what we see Understanding how shadows change throughout the day
Light vocabulary			light, light source, dark, absence, shadow, block, mirror, bright, dim, travel, straight, illuminate, visible, reflect, reflective, opaque, transparent, translucent, ultraviolet, UV rating, ray, dangerous, damage, protect, glare, screen, pupil, retina, beam, absorb, luminous, non-luminous, retro reflective, safety.			light, light source, waves, ray, beam, wave, photon, energy, vacuum, dark, absence, shadow, cast, block, mirror, bright, dim, travel, straight, bend, incidence, angle, periscope, illuminate, visible, reflect, reflective, refract, refraction, lens, focus, focal point, opaque, transparent, translucent, scatter, spectrum, rainbow, wavelength, colour, prism, filter.
Electricity				Identify common appliances which run on electricity investigating the differences between mains and battery-powered circuits Differentiating between conductors and isolators Building circuits Understand the role of a switch in a circuit		Understanding where electricity comes from and the history of it Revisiting the scientific symbols for electricity and creating drawings of circuits Investigating ways to affect the flow of electricity in a circuit Investigating the effect of electricity voltage on a bulb's brightness
Electricity vocabulary				electricity, charge, flow, current, generate, power, appliance, energy, source, renewable, non-renewable, safety, danger, precautions, electrical current, mains, cell(s), battery, batteries, battery holders, crocodile clips, wires, bulb, bulb holder, complete, incomplete, circuit, conductor, insulator, conduct, insulate, electrons, free electrons, switch, buzzer, motor, slide.		electricity, charge, flow, current, generate, power, appliance, energy, source, renewable, non-renewable, safety, danger, precautions, electrical current, mains, cell(s), battery, batteries, battery holders, crocodile clips, wires, bulb, bulb holder, complete, incomplete, circuit, conductor, insulator, conduct, insulate, electrons, free electrons, switch, buzzer, motor, slide, Thomas Edison, Nikola Tesla, Alessandro Volta, Michael Faraday, alternating current, direct current, voltage, brightness, loudness, increase, decrease, component, push button switch, pull switch, selector switch, key switch, paddle switch, toggle switch, dimmer switch.
Sound				Understanding the concept of sound vibration Understanding how sound travels Understanding the concept of pitch and volume Understand that sound gets fainter as the distance from source increases		
Sound vocabulary				sound, vibration, volume, amplitude, loud, quiet, faint, travel, wave, particles, vacuum, ear, distance, transmit, soundproof, absorb, thickness, insulation, strength, produce, sound source, medium, instrument.		
States of Matter				Understanding the difference between solids, liquids and gases Understanding what evaporation, condensation, heating, cooling and melting means Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.		

States of Matter vocabulary				material, substance, state, matter, properties, solid, liquid, gas, change state, energy, particles, heated, cooled, melt, solidify, freeze, thermometer, temperature, degrees Celsius (°C), evaporation, evaporate, water vapour, condensation, condense, precipitation, precipitate, water cycle, temperature, carbon dioxide, oxygen, weight, mass.		
Earth and Space					Identifying the different planets of the solar system Understanding that planets rotate around the sun and the moon rotates around Earth Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky Identifying different moon phases Understanding how craters are formed	
Earth and Space vocabulary					Earth, planets, Sun, solar system, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, relative, sphere, spherical, celestial, orbit, axis, Pluto, dwarf planet, crater, rotation, day, night, apparent movement, geocentric, heliocentric, Ptolemy, Alhazen, Copemicus, lunar, waxing, waning, crescent, gibbous.	
Changes of State					Compare and group everyday materials on the basis of properties including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets Give reasons (based on evidence from comparative tests) for the particular uses of everyday materials. Understanding that materials have changes Identifying ways to separate mixtures, discussing solubility Understanding and identifying reversible and irreversible changes of state Understanding the science behind thermal conductivity	
Changes of State vocabulary					material, substance, state, change state, matter, solid, liquid, gas, hardness, flexible, permeable, soluble, solubility, mixture, transparency, conductivity, electrical conductivity, thermal conductivity, insulation, resistance, magnetic, response, magnet, purpose, inventor, design, create.	
Evolution and Inheritance						Revisiting the fossilisation process Understanding how plants and animals including humans evolve. Investigating ways in which inheritance is evidenced Understanding the history of evolution and the work of Charles Darwin
Evolution and Inheritance vocabulary						inhabited, fossils, trapped, fossilisation, trace fossil, body fossil, sedimentary, inherit, inheritance, ancestor, parent, offspring, variety, variation, identical, breed, species, characterisation, survival, human intervention evolve, evolution, adaptation, adaptive traits, mutation, replication, palaeontologist, theorist, theory, Mary Anning, Charles Darwin, Alfred Wallace.

Working Scientifically Skills	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.	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.	Asking relevant questions. Using different types of scientific enquiries to answer questions. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations. Taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gathering and recording data in a variety of ways to help in answering questions. Classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language. Recording findings using drawings and labelled diagrams. Recording findings using keys, bar charts, and tables. Reporting on findings from enquiries, including displays or presentations of results and conclusions. Reporting on findings from enquiries, including oral and written explanations. Using results to draw simple conclusions and make predictions for new values. Using results to suggest improvements and raise further questions. Identifying differences, similarities or changes related to simple scientific ideas and processes.	Asking relevant questions. Using different types of scientific enquiries to answer questions. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations. 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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. Recording data and results of increasing complexity using classification keys. Recording data and results of increasing complexity using 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, causal relationships in oral and written forms such as displays and other presentations. Reporting and presenting findings from enquiries, including degree of trust in results, in oral and written forms such as displays and other presentations. Reporting and presenting findings from enquiries, including conclusions, 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.	Planning different types of scientific enquiries to answer questions. Recognising and controlling variables. 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. Recording data and results of increasing complexity using classification keys. Recording data and results of increasing complexity using 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, causal relationships in oral and written forms such as displays and other presentations. Reporting and presenting findings from enquiries, including degree of trust in results, in oral and written forms such as displays and other presentations. 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