

Body of Knowledge - Science 2023/24 - 2024/25

	Autumn	Spring	Summer
R	Children at the expected level of development will: ELG: Understanding of the World – The Natural World - 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. - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. ELG: Communication and Language – Listening, Attention and Understanding - Make comments about what they have heard and ask questions to clarify their understanding. ELG: Personal, Social and Emotional Development – Managing Self - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.		
Yr1/2 Year A 2024/25	Human Body and Staying Alive See NC objectives (Yr1-Animals) - 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. - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. See NC objectives (Yr2-Animals) - Notice that animals, including humans have offspring which grow into adults. - Describe the importance for humans to exercise, eat the right amounts of different types of food and hygiene. See NC objectives (Yr2-Living Things) - Describe how animals obtain food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food. Key vocabulary: <i>survival, water, air, food, adult, baby, growth, egg, offspring, kitten, calf, puppy, caterpillar, pupa, butterfly, spawn, tadpole, frog, egg, chick, chicken, life cycle, exercise, hygiene, diet, balanced, amphibian, mammals, bird, carnivore, omnivore, herbivore, belly button, torso, hands, fingers, nails, legs, feet, toes, bottom, knees.</i> [Working scientifically focus- identify and classify] <i>Curriculum Link: Computing - Grouping data</i>	Everyday objects and materials See NC objectives (Yr1 – Everyday materials) - To recognise the difference between the name of an object and the material from which it is made. - To identify a range of everyday materials including wood, plastic, glass, metal, water and rock. - To describe the physical properties of everyday materials - Understand how to group everyday materials according to their physical properties. Key vocabulary: <i>wood, plastic, glass, paper, water, metal, rock, hard, soft, stretchy, stiff, shiny, dull, bendy, not bendy, waterproof, not waterproof, absorbent, not absorbent, rough, smooth.</i> [Working scientifically focus - perform simple tests]	How does your garden grow? See NC objectives (Yr1-plants) - Name common plants and describe the basic structures of flowering plants, including deciduous and evergreen - Identify and describe the basic structures of a variety of common flowering plants, including trees. See NC objectives (Yr2-Plants) - Observe and describe how seeds and bulbs grow into mature plants. Key vocabulary: <i>leaf, flower, blossom, stem, berry, root, seed, trunk, branch, stem, bark, stalk, bud, deciduous, evergreen, trees, leaves, flowers, bulb (+ names of trees in local areas, garden and flowering beds).</i> [Working scientifically focus- identify and classify]

Yr1/2 Year B 2023/24	Material World (Uses of everyday materials) <i>See NC objectives (Yr1 –materials)</i> • Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials incl. wood, plastic, glass, metal, water and rock. • Describe the simple physical properties of a variety of materials. • Compare and group together a variety of everyday materials on the basis of their simple properties. <i>See NC objectives (Yr2 – Uses of everyday materials)</i> • To identify and group everyday materials (including wood, metal, plastic, brick, rock, paper and cardboard). • To compare the suitability of everyday materials for particular uses. • To recognise that the shape of some solid objects can be changed (e.g. by squashing, bending, twisting and stretching). Key vocabulary: <i>property, hard, soft, stretchy, rigid, flexible, shiny, dull, rough, smooth, bendy, waterproof, absorbent, opaque, transparent, brick, paper, fabrics, squash, bend, twist, stretch, elastic, foil</i> [Working scientifically focus- observe closely using simple equipment]	Animal Safari (Living things and habitats and animals incl. humans) <i>See NC objectives (Yr1 – Animals, including humans, this will be a recap for Y2 children and new for Year 1s)</i> • 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 what part of the body is associated with which sense. <i>See NC Objectives (Y2-animals)</i> • 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 to exercise, eat the right amounts of different types of food, and hygiene. <i>See NC Objectives (Y2- Living things)</i> • 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. • Describe how animals obtain food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food. Key vocabulary: <i>survival, water, air, food, adult, baby, growth, egg, offspring, kitten, calf, puppy, caterpillar, pupa, butterfly, spawn, tadpole, frog, egg, chick, chicken, life cycle, exercise, hygiene, diet – balanced, survival, dead, living, habitat, food, chains, plants, source.</i> [Working scientifically focus- gather and record data to help answer questions] <i>Curriculum Link: Computing - Pictograms (minibeast food preferences)</i>	Looking after Plants (Growing seeds and bulbs) <i>See NC objectives (Yr2 – Plants)</i> • To find out about how plants need water, light and a suitable temperature to grow and stay healthy. • <i>Recap- Identify and Observe and describe how seeds and bulbs grow into mature plants.</i> <i>See NC objectives (Yr1 – Plants)</i> • describe the basic structure of a variety of flowering plants, including trees. <i>See NC objectives (Yr1 – Seasonal Changes)</i> • Observe changes across the four seasons. Observe and describe the weather associated with each season and how the day length varies. Key vocabulary: <i>seeds, bulbs, water, light, temperature, warmth, growth, bud, germinate, shoot, root, leaves</i> [Working scientifically focus- use observations and ideas to suggest answers to questions]
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Year A Yr3/4 2024/25			
	Animals: health and nutrition <i>See NC objectives (Yr3 – Animals, including humans)</i> - To recognise that animals, including humans, need the right types and amount of nutrition from what they eat. - To identify different food groups and know how they keep us healthy. - To understand the meaning of a balanced diet. Key vocabulary <i>nutrition, nutrients, diet, balanced diet, carbohydrate, protein, water, vitamins and minerals, fat, fibre, healthy, growth, energy, fruit, vegetables, carnivore, omnivore, herbivore.</i> [Working scientifically focus- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions]	Rocks and Fossils <i>See NC objectives (Yr3 – Rocks)</i> - To compare and group different kinds of rocks on the basis of their appearance and physical properties. - To describe how fossils are formed when things that have lived are trapped within rocks. - To know that soil is a mixture of tiny particles of rocks, organic matter from animals and plants. Key vocabulary <i>fossils, soils, erode, sandstone, granite, chalk, slate, marble, pumice, sedimentary, igneous, metamorphic, crystals, hard, soft, permeable, impermeable, organic matter, particles, dissolve.</i> [Working scientifically focus- use straightforward scientific evidence to answer questions or to support their findings]	Plants: life cycles <i>See NC objectives (Yr3 – Plants)</i> - To identify and describe the functions of the main parts of a flowering plant (roots, stem, leaves and flowers). - To explore the requirements of plants for life and growth (air, light, water, nutrients from the soil, and room to grow). - To recognise the part that flowers play in the life cycle of flowering plants (including pollination, seed formation and seed dispersal). - To explain how water is transported within the plant (roots, stem, leaves) Key vocabulary <i>flower, stem, root, leaf, air, light, water, nutrients, soil, nutrients, light, temperature, life cycle, reproduction, seed, petals, transportation, dispersal, pollination, flower, seed, germinate</i> <i>Curriculum Link: Computing - Branching databases (identification of leaves).</i> [Working scientifically focus- gather, record, classify and present data in a variety of ways to help in answering questions]
	Light: shadows <i>See NC objectives (Yr3 – Light)</i> - To recognise that we need light in order to see things and that dark is the absence of light. - To know that light is reflected from surfaces. - To know that shadows are formed when light from a light source is blocked by an opaque object. - To explain patterns in the way the size of shadows change. - To understand that light from the sun can be dangerous and know how to protect your eyes. Key vocabulary <i>light source, natural, manmade, Sun, shadow, mirror, reflect, reflective, dark, reflection, eye, transparent, translucent, opaque</i> [Working scientifically focus- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables]	Forces and magnets <i>See NC objectives (Yr3 – Forces and magnets)</i> - To describe forces as pushes and pulls (they can make an object... start moving, stop moving, change shape or change direction). - To compare how things move on different surfaces. - To compare and group objects on the basis of whether they are attracted to a magnet. - To know that two magnets will attract or repel each other, depending on which poles are facing. Key vocabulary <i>magnetic, non-magnetic, iron, force, push, pull, contact, attract, repel, friction, grip, movement, surface, poles, push, pull, forcemeter, Newtons.</i> [Working scientifically focus- set up simple practical enquiries, comparative and fair tests]	Animals: skeletons and movement <i>See NC objectives (Yr3 – Animals, including humans)</i> - To recognise that some animals, including humans, have skeletons that give support, protect and allow movement. - To know that different types of animals may have different types of skeletons (vertebrates) or no skeleton at all (invertebrates). - To know how muscles work in pairs to help us move. Key vocabulary <i>Skeleton, movement, bones, skull, ribcage, protect, support, joints, muscles, contract, relax, vertebrate, invertebrate, exoskeleton, endoskeleton.</i> [Working scientifically focus- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables]

Yr3/4 Year B 2023/24	Animals: the digestive system <i>See NC objectives (Yr4 – Animals including humans)</i> - To describe the functions of the basic parts of the digestive system. - To identify the different types of teeth in humans and know their functions. - To construct and interpret food chains, identifying producers, predators and prey. Key vocabulary <i>mouth, tongue, teeth, oesophagus, swallow, digest, digestive system, break down, absorb, stomach, small intestine, large intestine, water, nutrition, herbivore, carnivore, omnivore, canine, incisor, molar, calcium, food chain, producer, consumer, predator, prey, dependent.</i> [Working scientifically focus- set up simple practical enquiries, comparative and fair tests]	Sound <i>See NC objectives(Yr4 – Sound)</i> - To identify how sounds are made when an object vibrates. - To know that vibrations travel through air (or a liquid/solid)) to the ear. - To recognise that pitch and volume describe different characteristics of a sound, and that these are related to the characteristics of the vibrations [the volume of a sound varies with the size of the vibrations (amplitude), the pitch with the number of vibrations per second (frequency)]. - To recognise that sounds get fainter as the distance from the sound source increases. Key vocabulary <i>volume, quieter, louder, vibration, wave, pitch, speaker, ear drum, travel, air, liquid, solid, travel, tuning fork, instrument, string, amplitude, amplify, frequency</i> [Working scientifically focus- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions] <i>Curriculum Link: Computing - Data logging (sound levels)</i>	Living things: classification and environments <i>See NC objectives (Yr4 – Living things in their habitats)</i> - To recognise that living things can be grouped in a variety of ways. - To use classification keys to help group, identify and name living things. - To recognise that environments can change (often because of human activity) and that this can affect the survival of living things. Key vocabulary <i>vertebrate, fish, amphibians, reptiles, birds, mammals, invertebrates, snail, slug, worm, spiders, insects, species, family, classify, classification key, features, environment, habitat, microhabitat, sustainable, conserve, manage.</i> [Working scientifically focus- identify differences, similarities or changes related to simple scientific ideas and processes]
	Electricity: making circuits <i>See NC objectives (Yr4 – Electricity)</i> - To identify common appliances that run on electricity - To construct simple series circuits, identifying and naming its basic parts (including cells, wires, bulbs, switches and buzzers). - To identify precautions for working safely with electricity. - To identify whether or not a lamp will light within different circuits. - To explain how a switch can be used to open and close a circuit. - To recognise some common conductors and insulators (i.e., all metals are good conductors and insulators include wood and plastics). Key vocabulary <i>cell, wire, bulb, switch, buzzer, battery, circuit, series, conductor, insulator, component, voltage</i> [Working scientifically focus- use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions] <i>Curriculum Link: D&T - Electrical systems</i>	States of matter: solids, liquids and gasses <i>See NC objectives (Yr4 – states of matter)</i> - To recognise the main properties of solids, liquids or gases: - To know that materials change state when they are heated or cooled (and to measure / research at which temperature this happens) - To identify the part played by evaporation and condensation in the water cycle. - To explain the changes of state that occur during melting, evaporating, condensing and freezing. - To explain the relationship between temperature and the rate of evaporation. Key vocabulary <i>solid, liquid, gas, heat, cool, melt, melting point, freeze, freezing point, particles, flow, evaporation, condensation, thermometer, temperature, water cycle, precipitation, run-off.</i> [Working scientifically focus- make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers] <i>Curriculum Link: Computing - Data logging (temperatures): application of skills</i>	

Year A 5/6 2024/25			
	Electricity: changing and drawing circuits <i>See NC objectives (Yr6 – Electricity)</i> - To know that the brightness of a lamp or the volume of a buzzer is affected by number and voltage of cells used in the circuit. - To compare and give reasons for variations in how components function, including the brightness of bulbs and the loudness of buzzers. - To use recognised symbols when representing a simple circuit in a diagram. - To identify the dangers associated with different types of electricity. - To recognise how components can be controlled by different types of switches. Key vocabulary <i>cells, wire, bulb, brightness, switch, buzzer, volume, battery, circuit, series, conductor, insulator, amps, voltage, current, circuit diagram, symbol, hazard, electrocution, device, appliance, socket, plug</i> [Working scientifically focus- use test results to make predictions to set up further comparative and fair tests] <i>Curriculum Link: D&T - Electrical systems</i>	Earth and Space <i>See NC objectives (Yr5 – Earth and Space)</i> - To describe the movement of the Earth and other planets relative to the sun in the solar system. - To describe the movement of the moon relative to the Earth. - To use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. - To know that the sun, Earth and moon are approximately spherical bodies. Key vocabulary <i>Earth, Sun, Moon, sphere, orbit, axis, rotation, day, night, shadow, phases of the Moon, waxing, waning, eclipse, solar system, planet, star, constellation</i> [Working scientifically focus- identify scientific evidence that has been used to support or refute ideas or arguments] <i>Curriculum Link: Computing – Spreadsheets</i>	Evolution and inheritance <i>See NC objectives (Yr6 – Evolution and inheritance)</i> - To recognise that living things have changed and evolved over time (and that fossils provide evidence of this). - To identify how animals and plants are adapted to suit their environment in different ways. - To recognise that offspring are of the same kind as their parents but normally vary from them and from each other. - To explain the importance of Darwin in developing the theory of evolution. Key vocabulary <i>fossils, adaptation, evolution, evolve, characteristics, traits, genes, natural selection, DNA, reproduction, genetics, extinction, Charles Darwin, Mary Anning</i> [Working scientifically focus- identify scientific evidence that has been used to support or refute ideas or arguments]
		Light: how light travels and how we see <i>See NC objectives (Yr6 – Light)</i> - To recognise that light appears to travel in straight lines. - To know that we see things because light travels from light sources to objects and then into our eyes. - To investigate and explain the relationship between light sources, objects and shadows. Key vocabulary <i>Straight lines, light source, reflect, reflection, angle of reflection, angle of incidence, light, dark, shadow, colour, focus, transparent, translucent, opaque, mirror, periscope, refract, rainbow, lens.</i> [Working scientifically focus- record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs]	Forces: gravity and friction <i>See NC objectives (Yr5 – Forces)</i> - To explain that unsupported objects fall towards the Earth because of the force of gravity. - To identify the effects of air resistance, water resistance and friction, that act between moving surfaces. - To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Key vocabulary <i>gravity, movement, direction, air resistance, water resistance, friction, movement, surfaces, gravity, Newtons, forcemeter, gears, pulleys, balanced forces, unbalanced forces.</i> [Working scientifically focus- take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate]

Year B 5/6 2023/24	Animals: the circulatory system <i>See NC objectives (Yr6 – Animals including humans)</i> - To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - To recognise that we need a sensible diet and lifestyle, including plenty of exercise, to keep our bodies healthy. - To recognise that some lifestyles, diets and drugs are harmful, because of the effect they have on the heart and circulatory system. - To describe the ways in which nutrients and water are transported within animals, including humans. Key vocabulary <i>circulatory system, lungs, alveoli, transport, exchange, oxygen, inhale, exhale, carbon dioxide, oxygenated, deoxygenated, heart, chambers, muscle, blood, red blood cells, blood vessels, capillaries, veins, arteries, valve, exercise, respiration, breath, exercise, nutrients, pulse, beat, resting heartbeat, diet, exercise.</i> [Working scientifically focus- report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations]	Materials: changing and separating <i>See NC objectives (Yr5 – Properties and changes of materials)</i> - To compare and group together everyday materials on the basis of their properties (including their hardness, solubility, transparency, conductivity - <i>electrical and thermal</i>, and response to magnets). - To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. - To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. - To demonstrate that dissolving, mixing and changes of state are reversible changes. - To describe examples of irreversible changes (including burning and the action of acid on bicarbonate of soda). Key vocabulary <i>solid, liquid, gas, heat, cool, melt, freeze, particles, hardness, solubility, transparency, transparent, translucent, opaque, conductivity, thermal, electrical. magnetic, attract, non-magnetic, separate, filter, evaporation, sieving, dissolving, mixture, funnel, filter paper, solution, soluble, insoluble, reversible, irreversible, chemical change</i> [Working scientifically focus- to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary] Humans: changes to old age <i>See NC objectives (Yr5 - Animals, including humans)</i> - To describe the changes as humans develop to old age. - To explain the changes experienced in puberty and how they differ for boys and girls. - To compare the gestational periods of humans and other animals. Key vocabulary <i>birth, grow, develop, baby, toddler, teenager, elderly, growth, stage, development, change, puberty, gestation (Including SRE vocabulary)</i> <i>Curriculum Link - SRE</i>	Classification of living things <i>See NC objectives (Yr6 – Living things and their habitats)</i> - To describe how living things are classified into broad groups according to observable characteristics (including, micro-organisms, plants and animals). - To use classification keys to identify animals and plants in the local area. - To design and test their own classification system. - To understand the importance of scientists like Carl Linnaeus' in developing the classification system. Key vocabulary <i>classification, classification key, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, mammals, insects, species, family, group, classify, identification, characteristics, features, habitat, adaptation, Linnaeus, Latin name.</i> [Working scientifically focus- record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs] <i>Curriculum Link: Computing - Flat file databases (plants and animals in the school grounds).</i> Life cycles <i>See NC objectives (Yr5 – Living things and their habitats)</i> - To recognise differences in life cycles of animals (a mammal, an amphibian, an insect and a bird). - To describe the life process of reproduction in some plants and animals. - To recognise the difference between sexual and asexual reproduction in plants. Key vocabulary <i>life cycle, develop, stage, lava, adult, pupa, metamorphosis, mammal, reproduction, sexual reproduction, asexual reproduction, insect, amphibian, bird, offspring, stamen, stigma, carpel, pollination, germination, flowering, reproduction, life cycle, seed, pollen, style, ovary, ovule, sex cell, seed dispersal, fertilisation.</i> <i>Curriculum Link - SRE</i>
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