

Larkholme Primary School

**Progression in Scientific Knowledge and Conceptual
Understanding**

	Year 1 /2 Cycle B	Year 1/2 Cycle A	Year 3/4 Cycle B	Year 3/4 Cycle A	Year 5/6 Cycle B	Year5/6 Cycle A
Animals including humans	<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 <p>Vocab</p> <ul style="list-style-type: none"> Parts of the body for animals: head, leg, body, beak, wing, senses (eyes, ears, nose, mouth/mouth parts, hands/paws/claws/talons), etc. Features linked to movement: fly, swim, crawl, run, climb, etc. Features linked to body covering: feathers, fur, scales, colour, camouflage, etc. Common animal types: mammal, bird, fish, amphibians, reptiles, etc. Comparative language: tall/taller/tallest, long/longer/longest, similar to, different from, etc. Describe, observe, compare, because. Expressions making generalisations, e.g. 'most have...' 	<ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene <p>Vocab:</p> <p>diet, variety, germ, healthy/unhealthy, medicines, safety, packaging, exercise.</p> <p>Offspring Grow Adults Water Food Air Exercise Nutrition Reproduce Egg Chick Chicken Butterfly pupa caterpillar Spawn tadpole frog</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 identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>Vocab:</p> <ul style="list-style-type: none"> Food/feed/feeding, growth, activity, healthy, unhealthy, nutrition, exercise, choice, balanced diet, lifestyle, adequate and varied diet, the right types and amount of nutrients. Food groups: vegetables, meat, fish, sugars and starches, fruit, fats etc. <p>Words which have different meanings in other contexts: diet, activity, evidence, conclusion etc.</p>	<ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey <p>Vocab:</p> <ul style="list-style-type: none"> Eat, chew, breakdown, saliva, swallow, feed, feeding, healthy, unhealthy, function, producer, predator, prey, dentist, toothpaste, dental care, hygienist, teeth, gums, incisor, molar, canine. Digestive system, mouth, tongue, oesophagus, stomach, small intestine, large intestine, faeces. Words which have different meanings in other contexts, e.g. diet, root, activity, decay, evidence, conclusion. Other words which might arise through discussion / research but are not essential, e.g. peristalsis, digestive juices, churn, energy, nutrients, absorbed, blood, liver, bladder, anus. 	<ul style="list-style-type: none"> describe the changes as humans develop to old age <p>Vocab: Animals including humans Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty</p> <ul style="list-style-type: none"> Mammals, amphibians, reptiles and plants. Live young/eggs, gestation/incubation period, grow, metamorphosis, parental care/no parental care. Flowering and non-flowering plants, classifying, classification. Reproduction/reproduce, fertilisation/fertilise, germination/germinate, pollination/pollinate. Stamen, style, stigma, sepal, petal, ovary, pollen. Adapted, adaptations, suited to its environment / habitat. Similarities and differences, compare and contrast, research. 	<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>Vocab:</p> <ul style="list-style-type: none"> Heart, heartbeat, pulse, pulse rate, muscle, blood vessel, blood, lung, oxygen, oxygenated blood, deoxygenated blood, carbon dioxide, circulate, circulatory system, organ. Diet, exercise, drugs, lifestyle, body function, harmful, healthy, damaged, nutrients, water, transported, substances.

<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>Vocab:</p> <p>Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p>					
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	Year 1 /2 Cycle B	Year 1/2 Cycle A	Year 3/4 Cycle B	Year 3/4 Cycle A	Year 5/6 Cycle B	Year5/6 Cycle A
Plants	<p>Plants-basic structure and observing growth over time. (Spring 1)</p> <ul style="list-style-type: none"> identify and name a variety of wild and garden plants including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants including trees <p>Vocab: Common, wild plants, garden plants, deciduous, evergreen, trunk, branches, leaf, root, leaves, bud, flowers, blossom, petal, stem, vegetables, bulb, seed.</p>	<p>Requirements for plant growth. (Spring 2)</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow in to mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy <p>Vocab: Water, light, suitable temperature, grow, healthy, germination, reproduction.</p>	<p>Plants- functions or parts and plant growth. (Summer 2)</p> <ul style="list-style-type: none"> identify and describe the functions of different flowering plants: roots, stem, trunk, leaves and flowers explore the requirements of plants for life and growth and how they vary from plant to plant investigate the way in which water is transported in plants explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal <p>Vocab: Structure: flowering plants, root, stem, trunk, leaves, flowers. Function: nutrition, support, reproduction, makes its own food.</p> <p>Life and growth: air, light, water, nutrients from the soil, room to grow, needs vary, fertilizer.</p> <p>Life cycle: flowers, pollination, seed formation, dispersal.</p>		<p>See also: Living things and their habitats</p> <p>Vocab</p> <p>Mammal, Reproduction, Insect, Amphibian, Bird, Offspring</p>	<p>See also: Living things and their habitats</p> <p>Classify plants based on specific characteristics. (<u>Living things and their habitats</u>)</p> <p>Can I describe how living things are classified in to broad groups according to common observable characteristics and based on similarities and differences?</p> <p>Vocab:</p> <p>Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects</p>

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Materials; States of Matter; Properties and changes of materials	<ul style="list-style-type: none"> distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties <p>Vocab: Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth</p>	<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>Vocab: Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil</p>		<ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature <p>Vocab: <ul style="list-style-type: none"> Solid, liquid, gas, property, change, temperature, change state, heated, cooled, temperature, degrees Celsius, water cycle. Condensation/condense, evaporation/evaporate, melting/melt, freezing/freeze, solidification/solidity, boiling temperature. Particle, air, carbon dioxide, oxygen, helium, natural gas, viscosity. States of matter. Measure, compare, group, research, observe. </p>	<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 <p>Vocab: <ul style="list-style-type: none"> Dissolved, undissolved, solution, mixture, filter, sieve, evaporate, condense, melting, separate, reversible, irreversible, reaction, product, material, powder, substance, acid, change, burning, rusting. Words and phrases related to data handling e.g. bar line graph, line graph, average, accurate. </p>	

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Living things and their habitats		<ul style="list-style-type: none"> • 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 micro-habitats • 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 <ul style="list-style-type: none"> ▪ Vocab: Animals, plants, habitat / micro-habitat, living / dead / never been alive, suited to, survive, basic needs, food chain, seashore, ocean, woodland, rainforest. ▪ Expressions to describe location e.g. within, under, next. ▪ Comparative phrases: smaller than, larger than, longer than, shorter than, more..., long, longer, longest, small, smaller, smallest, similar to, different from. ▪ Expressions making generalisations e.g. 'most have...' 		<ul style="list-style-type: none"> • recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose dangers to living things <p>Vocab:</p> <ul style="list-style-type: none"> ▪ Words related to: life processes - nutrition, habitats, feeding. ▪ Relationships: environment, habitat, condition, organism, carnivore, herbivore, omnivore, predator, prey, producer, consumer, food chain, key, classify, classification key, positive human impact, negative human impact. ▪ Words which have a different meaning in other contexts: producer, consumer, key, condition. ▪ Vertebrates and invertebrates: insects, minibeasts, mammals, reptiles, fish, birds, amphibians. 	<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 <p>Vocab:</p> <ul style="list-style-type: none"> ▪ Mammals, amphibians, reptiles and plants. ▪ Live young/eggs, gestation/incubation period, grow, metamorphosis, parental care/no parental care. ▪ Flowering and non-flowering plants, classifying, classification. ▪ Reproduction/reproduce, fertilisation/fertilise, germination/germinate, pollination/pollinate. ▪ Stamen, style, stigma, sepal, petal, ovary, pollen. ▪ Adapted, adaptations, suited to its environment / habitat. ▪ Similarities and differences, compare and contrast, research. 	<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 <p>Vocab:</p> <ul style="list-style-type: none"> ▪ Sort, group, identify, classify, environment, suited, classification system, key, habitat, characteristics, features, compare and contrast.

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Forces and magnets			<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 <p>Vocab: <input type="checkbox"/> Move, movement: fly, bounce, slide, spin, roll, swirl, swing, forward, backward, upwards, downwards, faster, slower, accelerate, decelerate, ramp, incline. <input type="checkbox"/> Push, pull, squeeze, springy, attract, repel, magnetic, non-magnetic, attraction, repulsion, names of common metals (e.g. iron, copper, aluminium), poles, horseshoe magnet, bar magnet, ring magnet, button magnet. <input type="checkbox"/> Stronger / weaker, best / worse.</p>		<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 <p>Vocab:</p> <ul style="list-style-type: none"> ▪ Friction, air resistance, water resistance, force-meter, Newtons, surface area, gravity, movement, between surfaces ▪ Lots of friction: gripping, stuck, don't slide or move easily, lots of surfaces touching, not slipping, like they are glued together. <p>Not much friction: slippery, sliding over each other, hard to grip onto, liquids stopping the surfaces touching each other easily).</p>	

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Electricity				<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>Vocab:</p> <ul style="list-style-type: none"> ▪ Circuit components: cell (battery), wire, bulb, bulb holder, buzzer, motor, switch (open/closed), circuit, electrical conductor, electrical insulator, connection, component, break. ▪ Electrical equipment: devices, appliances, mains electricity, safety. ▪ Connectivity terms: connection, mains, wire, break. ▪ Common materials: metal, wood, plastic, etc. ▪ Expressions for making suggestions: if, might, could. ▪ Comparative expressions: brighter, less bright (bulbs); faster, slower (motors), etc. <p><i>Note words which have a different meaning in other contexts e.g. circuit, break, bulb.</i></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 <p>Vocab:</p> <ul style="list-style-type: none"> ▪ Cell (battery), wire, bulb, bulb holder, buzzer, motor, switch (open/closed), complete circuit, electrical conductor, electrical insulator, component, circuit symbol, circuit diagram, standard symbols, voltage. ▪ Connection, component, break, fault, mains, wire. ▪ Devices, appliances, mains electricity, safety. ▪ Common materials e.g. metal, wood, plastic. ▪ Comparative expressions e.g. brighter, less bright (bulbs); faster, slower (motors). ▪ Words which have a different meaning in other contexts e.g. circuit, break, bulb, fault). ▪ Expressions for making suggestions using 'if', 'might', 'could'.

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Light			<p>Standalone unit</p> <ul style="list-style-type: none"> • 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 a solid object • find patterns in the way that the size of shadows change <p>Vocab: see, seen, light source, eyes, travel, torch</p> <p>shadow, opaque, block</p> <p>reflect, reflection, mirror, direction</p> <p>light travels, straight lines,</p> <p>Comparisons e.g. shortest, highest, furthest, closest</p>			<ul style="list-style-type: none"> • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them <p>Vocab:</p> <ul style="list-style-type: none"> ▪ See, seen, light source, eyes, travel, shadow, opaque, block, reflect, reflection, mirror, direction, light travelling, light beam, straight lines, cast, periscope, rearview mirror, object, shadow puppet, rainbow, colours, bend, split.

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Sound				<p>Standalone unit</p> <ul style="list-style-type: none"> • identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases <p>Vocab:</p> <p>Pitch, loudness, vibrate, vibration, muffle, tuning, quiet, soft, noise, sound, loudness, loud, volume, tension, tight, air, air column, muffle</p>		

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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 <ul style="list-style-type: none"> ▪ Vocab: Words describing rocks e.g. rock, stone, pebble, slate, marble, chalk, granite, sand, sandstone, hard, texture, grains, crystals, contains fossils, bits pressed together, sedimentary. ▪ Words describing soils e.g. darker, lighter, organic matter, leaf litter, grains, clay, sandy, grains. ▪ Rub together, break apart/break up, permeable, non-permeable, acid rain, weathering, erosion. ▪ Comparison/compare, description/describe. <p>Words which have different meanings in other contexts e.g. test, fair, conclude.</p>			

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Earth and Space					<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 <p>Vocab:</p> <ul style="list-style-type: none"> ▪ Sphere/spherical, revolve, orbit, spin, rotate, axis, sunrise, sunset, north, south, east, west, rotate around, rotate on its axis. ▪ Solar System, Sun, Moon, star, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, planet, conditions, features. ▪ Sundial, shadow clock, time, time zones. ▪ Model, compare, evidence. 	

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Evolution and inheritance						<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 <p>Vocab: Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics</p> <p>Evolution, change over time, species, population, features, trait, inherited, reproduce, offspring, variation, mutation, survive/survival/survival of the fittest, adaptation</p> <p>Consumer, producer, predator, prey, food chain, consumer, producer, key, suited</p>