

Curriculum Knowledge Progression: Science



Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
R	<u>'Settling in'</u> 'All about me' Megaboy Once there were Giants Funnybones	<u>'Toys'</u> A Chair for Baby Bear Nobot Robot T'was the Night Before Christmas	<u>Traditional Stories</u> A year on Adam's Farm The Three Little Pigs Three Billy Goats Gruff	<u>Contemporary stories</u> The Man on the Moon; a Day in the life of Bob Gruffalo Tree: Seasons Come, Seasons Go	<u>Mini-beasts</u> The Very Hungry Caterpillar The Tiny Seed What the Ladybird Heard	<u>The World</u> Handa's Surprise Atlases Bringing the Rain to Kapiti Plain Mama Panya's Pancake
Understand some important processes and changes in the natural world around them, - The seasons						
Enhanced Provisions: <ul style="list-style-type: none"> • <i>Garden Area – Observing & Describing Seasonal Changes and the Weather - signs of Autumn/Winter/Spring/Summer</i> • <i>Bug Hotel - exploring micro habitats for living things / drawing plants & animals</i> • <i>Use of scientific equipment including magnifying glasses/digital microscope/ binoculars/pipettes/rulers/measuring spoons</i> • <i>Exploring sand & water</i> • <i>Observing, grouping – naming & sorting/classifying</i> • <i>Asking questions & using secondary sources including books & the internet to answer questions</i> • <i>Naming & Describing the material objects are made from</i> • <i>Explore the natural world around them, wellie walks, garden afternoons, local walk</i> • <i>Make observations of the weather and how it affects the environment</i> 						
	Adult Led Teaching: <ul style="list-style-type: none"> • Naming parts of the body • Exploring and naming the senses • Healthy me – including diet, exercise and oral hygiene. 	Adult Led Teaching: <ul style="list-style-type: none"> • Explore the forces of pushing and pulling. • Explore how to build ramps to make cars go faster/further. • Explore and observe how we make balls bounce higher and talk about what they discover. • Explore different material and their through toys. 	Adult Led Teaching: <ul style="list-style-type: none"> • Explore and observe changes in matter through cooking – gingerbread making. • Explore what plants need to grow by planting beans. 	Adult Led Teaching: <ul style="list-style-type: none"> • Explore the solar system: naming the planets and exploring scientific ideas about the Sun and moon 	Adult Led Teaching: <ul style="list-style-type: none"> • Explore habitats of minibeasts • Lifecycle of a butterfly • Observe the different characteristics of a variety of minibeasts and then group and classify them. 	Adult Led Teaching: <ul style="list-style-type: none"> • Know some similarities and differences between the natural world around them and contrasting environments including weather.
1	Seasonal Change <ul style="list-style-type: none"> • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies Vocabulary: <i>summer, winter, autumn, spring, day, daytime, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold</i>					
	Everyday 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 Vocabulary: <i>material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, wool, clay, rubber, hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy/not bendy, waterproof, not waterproof, absorbent/not absorbent, see through/not see through, breaks, tears</i>	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 • 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 Vocabulary: <i>fish, amphibians, mammals, birds, reptiles, pets, omnivores (with examples) meat and plants, carnivores (with examples) meat, herbivores (with examples) plants, head, neck, body, arms, elbow, legs, knees, face, ears, eyes, hair, mouth, teeth, tail, claw, fin, scales, feathers, fur, beak, paws, hooves, Senses: tongue-taste, nose-smell, eyes – sight, skin – touch, ears - hearing</i>	Plants <ul style="list-style-type: none"> • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees Vocabulary: <i>wild plants, garden plants, deciduous, evergreen, leaf, root, leaves, bud, flowers, blossom, petals, root, stem, deciduous, evergreen, trunk, branches, leaf, root, fruit, vegetables, bulb, seed, bark, stalk, bud and the names of trees, flowering and wild flowering plants in the school garden</i>			

<p>2</p>	<p>Animals including Humans</p> <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) 	<p>Living Things and Their Habitats</p> <ul style="list-style-type: none"> explore and compare the difference 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 	<p>Uses of Everyday Materials</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>Plants</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy <p>Vocabulary: <i>wild plants, garden plants, deciduous, evergreen, leaf, root, leaves, bud flowers, blossom petals, root, stem, grow, healthy, deciduous, evergreen, trunk, branches, fruit, vegetables, bulb, seed, water, light, suitable, shade, sun, cool, warm</i></p>	
	<ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene <p>Vocabulary: <i>offspring, grow, adults, water, food, (meat, fish, vegetables, pasta, bread, rice) air, exercise, heartbeat, breathing, hygiene, germs. Disease, nutrition, reproduce, egg, chick, chicken, egg, caterpillar, cocoon, butterfly, spawn, tadpole, frog, baby, toddler, child, teenager, adult</i></p>	<p>provide the basic needs of different kinds of animals and plants, and how they depend on each other</p> <ul style="list-style-type: none"> 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 <p>Vocabulary: <i>living, dead, never alive, habitats, micro-habitats, food, food chain, sun, grass, cow, human, alive, healthy, feed, move, suited/suitable, basic need, logs, leaf litter, stony path, under bushes, shelter, seashore, woodland, ocean, rainforest, conditions: hot/warm/cold, dry/damp/wet, bright/shade/dark</i></p>	<p>Vocabulary: <i>wood, metal, plastic, glass, brick, rock, paper, cardboard, pushing, pulling, squashing, bending, twisting, stretching, opaque, translucent, transparent, reflective, non-reflective, flexible, rigid</i></p>			
<p>3</p>	<p>Animals Including Humans</p> <ul style="list-style-type: none"> identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>Vocabulary: <i>skeleton, bones, muscles – relax, contract, joints ball, socket, hinge & gliding sockets, support, protect, move, skull, ribs, spine</i></p>	<p>Animals including Humans</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; <p>Vocabulary: <i>nutrition, nutrients, carbohydrates, sugars, protein, fats, fibre, water, vitamins, minerals</i></p>	<p>Light</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that the 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 changes <p>Vocabulary: <i>light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</i></p>	<p>Forces and magnets</p> <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 on 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>Vocabulary: <i>force, push, pull, twist, contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole</i></p>	<p>Plants</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (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 <p>Vocabulary: <i>Photosynthesis, pollen, insect, wind, pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal</i></p>	<p>Rocks and Soils</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter <p>Vocabulary: <i>rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</i></p>

4	<p>Animals including Humans</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>States of Matter</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) 	<p>Electricity</p> <ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit 	<p>Sound</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 	<p>Living things and Their habitats</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
	<p>Vocabulary: human digestive system: digestion, mouth, tongue, teeth, saliva, oesophagus, transports, stomach, acid, enzymes, small intestine nutrients, vitamins, large intestine, colon, rectum, anus</p> <p>teeth: incisors – cutting, slicing, canines – ripping, tearing, pre-molars, molars – chewing, grinding, floss, brush, food chain, sun, producers, prey, predators, carnivore, herbivore, omnivore</p>	<ul style="list-style-type: none"> identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature <p>Vocabulary: solid, liquid, gas, change, melting, freezing, melting point, boiling point, evaporation, temperature</p>	<ul style="list-style-type: none"> recognise some common conductors and insulators, and associate metals with being good conductors <p>Vocabulary: electricity, electrical appliance/device, mains, plug, electrical circuit, component, cell, battery, positive, negative, connect, connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p>	<ul style="list-style-type: none"> 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>Vocabulary: Sound, source, vibrate, vibration, vibrating, vibrate, travel, pitch (high/low), volume, faint, loud, insulation</p>	<ul style="list-style-type: none"> recognise that environments can change and that this can sometimes pose dangers to living things <p>Vocabulary: Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>
5	<p>Forces</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>Vocabulary: force, gravity, Earth, air, resistance, friction, mechanisms, simple, machines, levers, pulleys, gears</p>	<p>Earth and Space</p> <ul style="list-style-type: none"> describe the movement of the Earth, and other planets, relative to the Sun 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>Vocabulary: Earth, Sun, Moon, moons, planets, stars, solar system, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, spherical, solar system, rotates, star, orbit</p>	<p>Properties and changes of materials</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 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 <p>Vocabulary: thermal/electrical/insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material</p>	<p>Living things and their Habitats</p> <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals <p>Vocabulary: life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings</p>	<p>Animals including Humans</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age <p>Vocabulary: puberty, life cycle, gestation, growth, reproduce, foetus, baby, fertilisation, toddler, child, teenager, adult, old age, life expectancy, adolescence, adulthood, early adulthood, middle adulthood, late adulthood, childhood</p>

<p>6</p>	<p>Light</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>Vocabulary: <i>light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous light, travels, straight lines, light rays</i></p>	<p>Electricity</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>Vocabulary: <i>circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage, volt</i></p>	<p>Animals including Humans</p> <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>Vocabulary: <i>heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle</i></p>	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution <p>Vocabulary: <i>offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</i></p>	<p>Living Things and Their Habitats</p> <ul style="list-style-type: none"> • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics <p>Vocabulary: <i>classify, classification, domain, kingdom, phylum, class, order, family, genus, species, characteristics, vertebrates, invertebrates, microorganisms, organism, flowering, non-flowering</i></p>
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