

Science Progression Document: Conceptual Knowledge and Vocabulary

Biology:

Plants					
<p>EYFS (Birth to three/Nursery/Reception)</p> <ul style="list-style-type: none"> To explore natural materials, indoors and outside (B) To use all their senses in hands-on exploration of natural materials. To explore collections of materials with similar and/or different properties. To plant seeds and care for growing plants. To understand the key features of the life cycle of a plant and an animal. To begin to understand the need to respect and care for the natural environment and all living things. (N) 				<p>EYFS Vocabulary:</p> <p>Tier 1: plant, water, sun, green, leaf, flower, dirt</p> <p>Tier 2: notice, compare, grow, die, cycle</p> <p>Tier 3: root, stem, seed, bulb, sprout, grow</p>	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>To identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>To observe and describe how seeds and bulbs grow into mature plants.</p> <p>To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>To 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.</p>			

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		<p>To investigate the way in which water is transported within plants.</p> <p>To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>			
VOCABULARY					
<p>Tier 1: flower, leaf, tree</p> <p>Tier 2: observe, label, same</p> <p>Tier 3: deciduous, evergreen, root, stem, petal, trunk</p>	<p>Tier 1: seed, grow, water</p> <p>Tier 2: germinate, survival, result</p> <p>Tier 3: bulb, shoot</p>	<p>Tier 1: soil, stem roots</p> <p>Tier 2: function, transport, role</p> <p>Tier 3: pollination, seed dispersal, nutrients</p>			

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Living things and their habitats

EYFS (Birth to three/Nursery/Reception)

- To explore natural materials, indoors and outside (B)
- Use all their senses in hands-on exploration of natural materials.
- To explore collections of materials with similar and/or different properties.
- To begin to understand the need to respect and care for the natural environment and all living things. (N)
- To draw information from a simple map.
- To explore the natural world around them.
- To describe what they see, hear and feel whilst outside.
- To recognise some environments that are different to the one in which they live (R)

EYFS Vocabulary:

Tier 1:

hot, cold, plant, animal

Tier 2:

observe, compare, same, different, identify, group, world

Tier 3:

habitat, temperature

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>To explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>To 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</p>		<p>To recognise that living things can be grouped in a variety of ways.</p> <p>To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>To recognise that environments can change</p>	<p>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>To describe the life process of reproduction in some plants and animals.</p>	<p>To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</p> <p>To give reasons for classifying plants and animals based on specific characteristics.</p>

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	<p>animals and plants, and how they depend on each other.</p> <p>To identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>To 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>		<p>and that this can sometimes pose dangers to living things.</p>		
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VOCABULARY

<p>Tier 1: alive, dead, wild, garden</p> <p>Tier 2: compare, match, habitat</p> <p>Tier 3: habitat, micro-habitat, food chain, source, urban</p>		<p>Tier 1: place, world</p> <p>Tier 2: classification key, impact</p> <p>Tier 3: environment, vertebrate, invertebrate</p>	<p>Tier 1: egg, seed, life, life cycle</p> <p>Tier 2: reproduce, sexual, asexual</p> <p>Tier 3: pollen, stamen, germination</p>	<p>Tier 1: group, type, tiny</p> <p>Tier 2: system., Linnaean, kingdom</p> <p>Tier 3: micro-organism, fungi, species</p>	
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Animals including humans

EYFS (Birth to three/Nursery/Reception)

- To explore natural materials, indoors and outside.
- To make connections between the features of their family and other families.
- To notice differences between people. (B)

- To use all their senses in hands-on exploration of natural materials.
- To begin to make sense of their own life-story and family's history.
- To understand the key features of the life cycle of a plant and an animal.
- To begin to understand the need to respect and care for the natural environment and all living things. (N)

- To talk about members of their immediate family and community.
- To name and describe people who are familiar to them.
- To recognise some environments that are different to the one in which they live. (R)

EYFS Vocabulary:

Tier 1:

big, small, animal, dog, cat, fish, eyes, hair, skin, move, eat

Tier 2:

compare, change, grow, health, die, group, sense, cycle

Tier 3:

beak, wing, fin, fur scales, gills

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>To identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p>	<p>To notice that animals, including humans, have offspring which grow into adults.</p> <p>To find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p>	<p>To 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.</p> <p>To identify that humans and some other animals have skeletons and muscles for</p>	<p>To describe the simple functions of the basic parts of the digestive system in humans.</p> <p>To identify the different types of teeth in humans and their simple functions.</p> <p>To construct and interpret a variety of food chains,</p>	<p>To describe the changes as humans develop to old age.</p>	<p>To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>

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<p>To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>support, protection and movement.</p>	<p>identifying producers, predators and prey.</p>		<p>To describe the ways in which nutrients and water are transported within animals, including humans.</p>
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VOCABULARY

<p>Tier 1: body, head, tail</p> <p>Tier 2: identify, group, notice</p> <p>Tier 3: fish, amphibian, reptile, bird, mammal, carnivore, herbivore, omnivore</p>	<p>Tier 1: baby, adult, clean</p> <p>Tier 2: sequence, health, stage</p> <p>Tier 3: offspring, exercise, hygiene, life cycle</p>	<p>Tier 1: bones, food, move</p> <p>Tier 2: support, protect, identify</p> <p>Tier 3: skeleton, muscle, nutrition, joint</p>	<p>Tier 1: teeth, stomach, eat</p> <p>Tier 2: function, digestive, model</p> <p>Tier 3: enzyme, oesophagus, canine, molar</p>	<p>Tier 1: old, young, grow</p> <p>Tier 2: data, analysis, gestation</p> <p>Tier 3: puberty, foetus, hormone</p> <p><i>vocabulary to describe sexual characteristics in line with the school's RSE policy</i></p>	<p>Tier 1: heart, blood, breath</p> <p>Tier 2: circulatory, transport, vessel</p> <p>Tier 3: oxygenated, artery, vein, vessel, pulse</p>
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Evolution and inheritance					
EYFS (Birth to three/Nursery/Reception)				EYFS Vocabulary:	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<p>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.</p> <p>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
VOCABULARY					

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					<p>Tier 1: bones, change, family</p> <p>Tier 2: adaptation, inheritance</p> <p>Tier 3: variation, natural selection</p>
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Chemistry:

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Materials

EYFS (Birth to three/Nursery/Reception)

- To explore materials with different properties.
- To explore natural materials, indoors and outside. (B)
- To use all their senses in hands-on exploration of natural materials.
- To explore collections of materials with similar and/or different properties.
- To talk about the differences between materials and changes they notice. (N)
- To explore the natural world around them.
- To describe what they see, hear and feel whilst outside. (R)

EYFS Vocabulary:

Tier 1:

hot, cold, thick, wet, dry

Tier 2:

same, different, group, find, choose, material

Tier 3:

smooth, rough, sink, float, melt, freeze, solid, liquid, waterproof, absorbent

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To distinguish between an object and the material from which it is made.</p> <p>To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>To describe the simple physical properties of a</p>	<p>To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>To find out how the shapes of solid objects made from some materials can be changed by squashing,</p>		<p>To compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>To 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>	<p>To 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.</p> <p>To know that some materials will dissolve in liquid to form a solution,</p>	

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<p>variety of everyday materials.</p> <p>To compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p>bending, twisting and stretching.</p>		<p>To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>To recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)</p>	<p>and describe how to recover a substance from a solution.</p> <p>To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>To demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>To explain that some changes result in the formation of new materials, and that this kind of</p>	
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				change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
VOCABULARY					
<p>Tier 1: shiny, hard, soft, bendy</p> <p>Tier 2: object, material, test</p> <p>Tier 3: transparent, waterproof, dull</p>	<p>Tier 1: shape, twist, push</p> <p>Tier 2: suitable, property, affect</p> <p>Tier 3: squashing, bending, twisting, stretching, opaque, flexible</p>		<p>Tier 1: steam, ice, puddle</p> <p>Tier 2: state, process, measure</p> <p>Tier 3: evaporation, condensation, particle</p>	<p>Tier 1: mix, disappear, melt</p> <p>Tier 2: dissolve, solution, soluble</p> <p>Tier 3: reversible, irreversible, thermal</p>	

Rocks

EYFS (Birth to three/Nursery/Reception)

EYFS Vocabulary:

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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>To describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>To recognise that soils are made from rocks and organic matter.</p>			
VOCABULARY					
		<p>Tier 1: stone, soil, cave</p> <p>Tier 2: classify, layers, origin</p> <p>Tier 3: sedimentary, igneous, fossil</p>			

Physics:

Forces	
<p>EYFS (Birth to three/Nursery/Reception)</p> <ul style="list-style-type: none"> To repeat actions that have an effect. (B) 	<p>EYFS Vocabulary: Tier 1</p>

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- To explore how things work.
- To explore and talk about different forces they can feel.
- To talk about the differences between materials and changes they notice. (N)
- To explore the natural world around them.
- To describe what they see, hear and feel whilst outside. (R)

fast, slow, push, pull, bubble

Tier 2:

predict, test, distance, move, stop, start, record

Tier 3:

surface, magnet

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>To compare how things move on different surfaces.</p> <p>To notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>To observe how magnets attract or repel each other and attract some materials and not others.</p> <p>To compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and</p>		<p>To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	

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		<p>identify some magnetic materials.</p> <p>To describe magnets as having two poles.</p> <p>To predict whether two magnets will attract or repel each other, depending on which poles are facing</p>			
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VOCABULARY

		<p>Tier 1: magnet, push, pull</p> <p>Tier 2: contact, attraction, force</p> <p>Tier 3: friction, magnetic pole, repel</p>		<p>Tier 1: heavy, drop, slow</p> <p>Tier 2: resistance, gravity, effect</p> <p>Tier 3: buoyancy, lever, pulley, gear</p>	
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Sound

EYFS (Birth to three/Nursery/Reception)

EYFS Vocabulary:

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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p>To identify how sounds are made, associating some of them with something vibrating.</p> <p>To recognise that vibrations from sounds travel through a medium to the ear.</p> <p>To find patterns between the pitch of a sound and features of the object that produced it.</p> <p>To find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>To recognise that sounds get fainter as the distance from the sound source increases.</p>		
VOCABULARY					
			Tier 1:		

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			<p>loud, quiet, high</p> <p>Tier 2: vibration, distance, pitch, volume</p> <p>Tier 3: amplitude, frequency, insulation</p>		
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Electricity					
EYFS (Birth to three/Nursery/Reception)				EYFS Vocabulary:	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

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			<p>To identify common appliances that run on electricity.</p> <p>To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>To 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.</p> <p>To 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> <p>To recognise some common conductors and insulators,</p>		<p>To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>To 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.</p> <p>To use recognised symbols when representing a simple circuit in a diagram.</p>
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			and associate metals with being good conductors		
VOCABULARY					
			<p>Tier 1: wire, light, battery</p> <p>Tier 2: circuit, component, flow</p> <p>Tier 3: series circuit, cell, switch, conductor, insulator</p>		<p>Tier 1: switch, bulb, power</p> <p>Tier 2: voltage, resistance, symbol</p> <p>Tier 3: amps, filament</p>

Seasonal Changes

EYFS (Birth to three/Nursery/Reception)

- To explore the natural world around them.
- To describe what they see, hear and feel whilst outside.

EYFS Vocabulary:

Tier 1:
hot, cold, sun, rain, snow

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<ul style="list-style-type: none"> To understand the effect of changing seasons on the natural world around them. (R) 				<p>Tier 2: notice, before, after, pattern, season</p> <p>Tier 3: autumn, winter, spring, summer, temperature</p>	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To observe changes across the four seasons.</p> <p>To observe and describe weather associated with the seasons and how day length varies.</p>					
VOCABULARY					
<p>Tier 1: sun, rain, snow, wind</p> <p>Tier 2: record, change, pattern</p> <p>Tier 3: season, autumn, winter, spring, summer</p>					

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Light

EYFS (Birth to three/Nursery/Reception)

- To repeat actions that have an effect. (B)
- To explore how things work.

EYFS Vocabulary:

Tier 1:
light, dark

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<ul style="list-style-type: none"> To talk about the differences in materials and changes they notice. (N) To describe what they see, hear and feel whilst outside. (R) 				<p>Tier 2: observe, choose,</p> <p>Tier 3: sun, moon, stars, shadow, transparent, opaque</p>	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<p>To recognise that they need light in order to see things and that dark is the absence of light.</p> <p>To notice that light is reflected from surfaces.</p> <p>To recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>To recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p>		<p>To 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. (Y5 - Properties and changes of materials)</p>	<p>To recognise that light appears to travel in straight lines.</p> <p>To 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.</p> <p>To 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.</p> <p>To use the idea that light travels in straight lines to explain why shadows have</p>

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		To find patterns in the way that the size of shadows change.			the same shape as the objects that cast them
VOCABULARY					
		Tier 1: mirror, dark, bright Tier 2: reflect, block, evidence Tier 3: shadow, source, opaque		Tier 1: rainbow, beam, glass Tier 2: ray, refraction, spectrum Tier 3: periscope, retina, concave/convex	

Earth and space					
EYFS (Birth to three/Nursery/Reception)				EYFS Vocabulary:	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

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				<p>To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>To describe the movement of the Moon relative to the Earth.</p> <p>To describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>To 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					
				<p>Tier 1: Sun, Moon, Earth</p> <p>Tier 2: orbit, rotation, axis</p>	

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				Tier 3: solar system, celestial, spherical	
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