



# Mid-Term Overviews 2020/21

## Class 3



### Term 1 - Living Things and Their Habitats (Year 4 NC)

National Curriculum Objectives	Key Knowledge	Vocabulary	Key Scientists	Prior Learning	Future Learning
<p>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 danger to living things.</p>	<p>Living things can be divided into groups based upon their characteristics Environmental change affects different habitats differently Different organisms are affected differently by environmental change Different food chains occur in different habitats Human activity significantly affects the environment</p>	<p>Environment, flowering, nonflowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation.</p>	<p>Cindy Looy (Environmental Change and Extinction)  Jaques Cousteau (Marine Biologist)</p>	<p>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 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 the</p>	<p>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>



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Key Question(s):	Working Scientifically opportunities:	Big Question - Assessment opportunity	Linked Texts	different sources of food.	
<p>What food chains and webs are there in our local habitat?</p> <p>How does energy move through the food chain?</p> <p>How does removal of one species from an environment, affect others? (keystone species)</p> <p>How does environmental change affect different organisms?</p> <p>What are the most important things we could do to improve our outside area? (big hotels, pond, compost, wildflowers)</p> <p>How does human activity affect our environment (ferries on the Solent? Sandown Airport? KFC?)</p>	<p>Competitive tests - Which pets are the easiest to look after?</p> <p>Is there the same level of light in the evergreen wood compared with the deciduous wood?</p> <p>Identify and Classify - How would you group these plants and animals based on what habitat you would find them in?</p> <p>Observation Overtime - How does the school pond change over the year?</p> <p>Pattern Seeking - What conditions do woodlice prefer to live in?</p>	<p>Are living things in danger?</p>	<p>The Vanishing Rainforest (Richard Platt)</p> <p>The Morning I Met a Whale (Michael Morpurgo)</p> <p>Journey to the River Sea (Eva Ibbotson)</p>		



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	<p>Which habitat do worms prefer - where can we find the most worms?</p> <p>Research - How are the animals in Australia different to the ones that we find in Britain? How does the habitat of the Arctic compare with the habitat of the rainforest? What ideas did botanist Arthur Tansley have about habitats in 1935?</p>				
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### Term 2 - Animals, including Humans (Year 3 NC)

National Curriculum Objectives	Key Knowledge	Vocabulary	Key Scientists	Prior Learning	Future Learning
<p>Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.</p>	<p>Different animals are adapted to eat different foods. Many animals have skeletons to support their bodies and protect vital organs.</p>	<p>Nutrients, nutrition, carbohydrates, protein, fats, vitamins, minerals, water, fibre, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic skeleton, vertebrates,</p>	<p>Adelle Davis (20th Century Nutritionist)  Marie Curie (Radiation / X-Rays)</p>	<p>Know that animals, including humans, have offspring which grow into adults. Know the basic stages in a life cycle for animals, including humans. Find out and describe the basic needs of</p>	<p>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.</p>



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<p>Know how nutrients, water and oxygen are transported within animals and humans. Know about the importance of a nutritious, balanced diet. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Muscles are connected to bones and move them when they contract. Movable joints connect bones.</p>	<p>invertebrates, muscles, contract, relax,</p>		<p>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>	<p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>
Key Question(s):	Working Scientifically opportunities:	Big Question - Assessment opportunity	Linked Texts		
<p>Why do we need a skeleton?            What types of skeleton are there?            Are all skeletons the same?            Can something survive without a skeleton?            What happens if we break a bone?            How do we move?            Are bones that are bigger, stronger?</p>	<p>Competitive tests - How does the angle that your elbow/knee is bent affect the circumference of your upper arm/thigh?            How does the skull circumference of a girl compare with that of a boy?            Identify and Classify - How do the skeletons of</p>	<p>Why do animals have skeletons?            What is a healthy diet and why is it important?</p>	<p>The Story of Frog Belly Rat Bone (Timothy Basil Ering)            Funnybones (Janet and Allan Ahlberg)            I Will Never Not Ever Eat a Tomato (Lauren Child)</p>		



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<p>Why do we need joints? Why do muscles get tired? Can we 'break' muscles?</p>	<p>different animals compare?</p> <p>Observation Overtime - How does our skeleton change over time? (from birth to death)</p> <p>Pattern Seeking - Do male humans have larger skulls than female humans?</p> <p>Research - Why do different types of vitamins keep us healthy and which foods can we find them in?</p>		<p>Goldilocks and the Three Bears (Samantha Berger)</p>		
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### Term 3 - Sound (Year 4 NC)

National Curriculum Objectives	Key Knowledge	Vocabulary	Key Scientists	Prior Learning	Future Learning
<p>Know how sound is made associating some of them with vibrating. Know what happens to a sound as it travels from its source to our ears.</p>	<p>Sound travels from its source in all directions and we hear it when it travels to our ears. Sound travel can be blocked.</p>	<p>Amplitude, volume, quiet, loud, ear, pitch, high, low, particles, instruments, wave.</p>	<p>Aristotle (Sound Waves)  Galileo Galilei (Frequency and Pitch of Sound Waves)</p>	<p>May have some understanding that objects make different sounds.</p>	<p>In KS3: Frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound</p>



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<p>Know the correlation between the volume of a sound and the strength of the vibrations that produced it. Know how sound travels from a source to our ears. Know the correlation between pitch and the object producing a sound.</p>	<p>Sound spreads out as it travels. Changing the shape, size and material of an object will change the sound it produces. Sound is produced when an object vibrates. Sound moves through all materials by making them vibrate. Changing the way an object vibrates changes it's sound. Bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds. Faster vibrations (higher frequencies) produce higher pitched sounds</p>		<p>Alexander Graham Bell (Invented the Telephone)</p>	<p>Some understanding that they use their ears to hear sounds. Know about their different senses.</p>	<p>Sound needs a medium to travel, the speed of sound in air, in water, in solids. Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. Auditory range of humans and animals.</p>
<p><b>Key Question(s):</b></p>	<p><b>Working Scientifically opportunities:</b></p>	<p><b>Big Question - Assessment opportunity</b></p>	<p><b>Linked Texts</b></p>		
<p>How can you change the volume of a sound? How does the size of an ear trumpet affect the</p>	<p>Competitive tests - How does the volume of a drum change as you move further away from it?</p>	<p>How can we make different sounds?</p>	<p>Horrid Henry Rocks (Francesca Simon)  Moonbird</p>		



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<p>volume of sound detected?          How does the type of material affect how well it blocks a sound?          How does thickness of material affect how well it blocks a sound?          Which materials vibrate better and produce louder sounds? Can we identify any patterns?          Which materials make the best string telephone components? (tin cans, paper cups, plastic cups, wire, cable, string, plastic or elastic - predict and test)          How does length of the tube (when making a straw oboe) affect the pitch and volume?          Can you predict the relative pitch of tuning forks from the patterns of ripples they make in the water?</p>	<p>How does the length of a guitar string/tuning fork affect the pitch of the sound? Are two ears better than one?</p> <p>Identify and Classify - Which material is best to use for muffling sound in ear defenders?</p> <p>Observation Overtime - When is our classroom the quietest?</p> <p>Pattern Seeking - Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school?</p> <p>Research - Do all animals have the same hearing range?</p>		<p>(Joyce Dunbar)</p> <p>The Pied Piper of Hamelin          (Natalia Vasquez)</p>		
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### Term 4 - Plants (Year 3 NC)

National Curriculum Objectives	Key Knowledge	Vocabulary	Key Scientists	Prior Learning	Future Learning
<p>Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers</p> <p>Explore the part flowers play in a flowering plants life cycle, including: pollination, seed formation and seed dispersal</p> <p>Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants</p> <p>Know the way in which water is transported between plants</p>	<p>Plants are producers, they make their own food.</p> <p>Their leaves absorb sunlight and carbon dioxide.</p> <p>Plants have roots, which provide support and draw water from the soil.</p> <p>Flowering plants have specific adaptations which help it to carry out pollination, fertilisation and seed production.</p> <p>Seed dispersal improves a plants chances of successful reproduction</p> <p>Seeds/bulbs require the right conditions to germinate and grow.</p> <p>Seeds contain enough food for the plant's initial growth.</p>	<p>Air, light, water, nutrients, soil, support, anchor, reproduction, pollination, dispersal, transportation, flower, energy, growth, seedling, carbon dioxide, oxygen, sugar, material, photosynthesis, chlorophyll</p>	<p>Jan Ingenhousz (Photosynthesis)</p> <p>Joseph Banks (Botanist)</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and warmth to grow and stay healthy.</p>	<p>Recognise that living things have changed over time and that fossils provide information about living things</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>Identify how animals and plants are adapted to suit their environment in different ways, and that adaptation can lead to evolution.</p>



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Key Question(s):	Working Scientifically opportunities:	Big Question - Assessment opportunity	Linked Texts		
<p>How do plants reproduce?            Do all flowers look the same?            How do insects know which flowers to pollinate?            Why do flowers smell?            What do seeds do?            Can a plant live without its leaves?            Do grass/trees make flowers?            What conditions are perfect for a seed to grow?            Where do weeds come from?            How does the space between seeds affect how well they grow?            Does seed size match plant size?            Do plants take in water through their roots?</p>	<p>Competitive tests - Which pets are the easiest to look after?            Is there the same level of light in the evergreen wood compared with the deciduous wood?</p> <p>Identify and Classify - How would you group these plants and animals based on what habitat you would find them in?</p> <p>Observation Overtime - How does the school pond change over the year?</p> <p>Pattern Seeking - What conditions do woodlice prefer to live in?            Which habitat do worms prefer - where can we find the most worms?</p>	<p>Why do plants have flowers?</p>	<p>The Hidden Forest (Jeannie Baker)</p> <p>George and Flora's Secret Garden (Jo Elworthy)</p>		



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<p>How does water move through the plant?          How do plants make their food?          How does light affect plant growth?          How does a plant get carbon dioxide?</p>	<p>Research - How are the animals in Australia different to the ones that we find in Britain?          How does the habitat of the Arctic compare with the habitat of the rainforest?          What ideas did botanist Arthur Tansley have about habitats in 1935?</p>				
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### Term 5 - Electricity (Year 4 NC)

National Curriculum Objectives	Key Knowledge	Vocabulary	Key Scientists	Prior Learning	Future Learning
<p>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 the circuit and</p>	<p>A source of electricity (mains or battery) is needed for electrical devices to work.            Electricity sources push electricity round a circuit.            More batteries will push the electricity round the circuit faster.            Devices work harder when more electricity goes through them.</p>	<p>Electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, component.</p>	<p>Thomas Edison (First Working Lightbulb)             Joseph Swan (Incandescent Light Bulb)</p>	<p>May have some understanding that objects need electricity to work.            May understand that a switch will turn something on or off.</p>	<p>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.</p>



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<p>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. Know the difference between a conductor and an insulator; giving examples of each. Safety when using electricity.</p>	<p>A complete circuit is needed for electricity to flow and devices to work. Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are called insulators.</p>				<p>Use recognised symbols when representing a simple circuit in a diagram.</p>
<p><b>Key Question(s):</b></p>	<p><b>Working Scientifically opportunities:</b></p>	<p><b>Big Question - Assessment opportunity</b></p>	<p><b>Linked Texts</b></p>		
<p>What would life be like without electricity? What sorts of things use/need electricity? What electricity do I use? In which ways can we 'get' electricity? (mains/plugs/batteries/wireless) How do we make electricity? How do batteries work? How quickly can batteries run out? Does this make a</p>	<p>Competitive tests - How does the thickness of a conducting material affect how bright the lamp is?  Which metal is the best conductor of electricity? Identify and Classify - How would you group these electrical devices based on where</p>	<p>What can we do with electricity?</p>	<p>Until I Met Dudley (Roger McGough)  Oscar and the Bird: A Book about Electricity (Geoff Waring)  Electrical Wizard: How Nikola Tesla Lit Up the World (Elizabeth Rusch)</p>		



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<p>difference depending on number of components? How does the number of batteries added to the circuit affect a device? What materials can carry electricity? (conductors/insulators)</p>	<p>the electricity comes from?</p> <p>Observation Overtime - How long does a battery light a torch for?</p> <p>Pattern Seeking - Which room has the most electrical sockets in a house?</p> <p>Research - How has electricity changed the way we live? How does a light bulb work?</p>				
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### Term 6 - Materials: States of Matter (Year 4 NC)

National Curriculum Objectives	Key Knowledge	Vocabulary	Key Scientists	Prior Learning	Future Learning
<p>Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state</p>	<p>Solids, liquids and gases are described by observable properties. Materials can be divided into solids, liquids and gases.</p>	<p>Solid, liquid, gas, particles, state, materials, properties, matter, melt, freeze, water, ice, temperature, process, condensation, evaporation, water</p>	<p>Anders Celcius (Celcius Temperature Scale)  Daniel Fahrenheit (Fahrenheit Temperature Scale /</p>	<p>Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including</p>	<p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical</p>



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<p>when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Heating causes solids to melt into liquids and liquids evaporate into gases. d) Cooling causes gases to condense into liquids and liquids to freeze into solids. The temperature at which given substances change state are always the same.</p>	<p>vapour, energy, precipitation, collection,</p>	<p>Invention of the Thermometer)</p>	<p>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. 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>	<p>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 wood, metals and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new</p>
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					materials, and this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
Key Question(s):	Working Scientifically opportunities:	Big Question - Assessment opportunity	Linked Texts		
<p>How does the amount of water added to flour affect its state?</p> <p>How does the amount of detergent added to water affect how slippery it is?</p> <p>How does the temperature affect how viscous a liquid is (use cooking oil)?</p> <p>Place a peach in a glass of lemonade and watch it spin. Why does it behave that way and can you prove it?</p> <p>How does the material sprinkled on ice and snow</p>	<p>Competitive tests - How does the mass of a block of ice affect how long it takes to melt? How does the surface area of water affect how long it takes to evaporate?</p> <p>Does seawater evaporate faster than fresh water?</p> <p>Identify and Classify - Can you group these materials and objects into solids, liquids, and gases? How would you sort these objects/materials based on their temperature?</p>	<p>Where do ice cubes go when they disappear?</p> <p>Why does it rain and hail?</p>	<p>Once Upon a Raindrop: The Story of Water (James Carter)</p> <p>Sticks (Diane Alber)</p>		



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<p>affect how quickly it melts? What chocolate would be best to smuggle? How does the type of chocolate affect its melting temperature? What is the melting temperature of ice and how does it compare with the freezing temperature of water? Is the melting temperature of wax the same as its freezing temperature?</p>	<p>Observation Overtime - Which material is best for keeping our hot chocolate warm? How does the level of water in a glass change when left on the windowsill?</p> <p>Pattern Seeking - Is there a pattern in how long it takes different sized ice lollies to melt? How does evaporation rate change as you add more salt to your water?</p> <p>Research - What are hurricanes, and why do they happen?</p>				
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