



Emmbrook Infant School EYFS & KS1 Science Overview: Progression of Skills & Knowledge

Year 2					
Topic Enquiry focus	NC Key Skills and Knowledge	Lesson Progression	Spiral knowledge building Termly/Annually	Curriculum Cohesion /Cultural Capital	Cultural capital/ Significant Historians
<p>Why don't we all live in the sea?</p> <p>Would you rather be awake in the day or the night?</p>	<p>Living Things and their habitats</p> <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 microhabitats ➤ 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 	<ol style="list-style-type: none"> 1. Examine different real sea creatures (dead) through a practical investigation and explore their different features and purpose. Compare living and non-living fish models and discuss misconceptions. 2. Explore different sea habitats and match sea life to the different microhabitats within the sea. Discuss why creatures are best suited to their habitat. (shoe box habitats). 3. Create food chains for different animals (land and sea). Discuss predators and prey and where they are in the food chain. 4. Place humans in a food chain and emphasise the different food choices available. 5. Identify nocturnal animals, their diet, habitat and young. Establish why they are nocturnal. Create a new owl breed. 6. Class Autumn walk around the grounds naming key plants and their seasonal behaviour 	<p>Annually - Building on the study of bears and their habitats from year 1</p> <p>Widening knowledge of plants in our environment.</p>	<p>Link with art and D.T- paper mechanisms habitat books, malleable materials -clay owls</p> <p>Geography- local habitats, sustainability , five oceans</p> <p>Literacy- class texts- House for Hermit Crab</p> <p>Literacy – class texts The Owl who was afraid of the dark</p>	<p>David Attenborough (Living Things)</p> <p>Salim Ali (ornithologist)</p>



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	Knowledge Outcomes: 1. Name the 5 oceans 2. Give a fact about each ocean 3. Locate each ocean on a map or globe 4. The ocean is a habitat for which creatures				
Can seeds grow anywhere?	Plants ➤ 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	1. Review year 1 learning on planting beans by discussing what seeds need to grow. Set up investigation planting seeds in different conditions, predicting and observing patterns of growth. 2. Record observations using pictures, text and measurement and draw conclusions. Create a greenhouse with ideal growing conditions to observe. 3. Plant bulbs and seeds and observe their growth.	Annually- Building on basic growth needs from year 1, including observations	Links to geography - plants in the local environment Art- observational drawings of daffodils D.T- Healthy eating designing pasta salad PSHE- healthy choices and hygiene	All children will take termly walks in our grounds to observe, study and be able to identify the following plants and trees to build on their growing knowledge.: ➤ Willow, Oak, Conifer, Beech, Silver Birch ➤ Lavender, Daffodils, Buddleia, daisy, Buttercup, Tulip Language of evergreen, deciduous



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	<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) ➤ describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ol style="list-style-type: none"> 1. Review year 1 learning of life cycles - different life cycles of animals 2. Name a wider variety of animals and their offspring 3. Review requirements for healthy plants and link to humans <p>A- life workshop, design pasta salad, Eat well plate, eat a rainbow</p>	<p>Annually- Building on characteristics of bears from study in year 1, their habitats and the life cycles of a chick.</p>	<p>D.T- designing pasta salad</p> <p>PSHE- healthy choices and hygiene</p>	<p>Rebecca Lee Crumpler (Physician - linked to Florence Nightingale/May Seacole)</p> <p>The children will also study their class bird and birds that visit our school:</p> <ul style="list-style-type: none"> ➤ Kingfishers, Woodpeckers ➤ Red Kites, Robins, Blue Tits, Great Tits, Pigeons <p>Visit from A-Life</p>
<p>Can materials change?</p>	<p>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. 	<ol style="list-style-type: none"> 1. Review materials and their properties and talk about why materials are used for different purposes 2. Experiment with different materials to choose the best material to wrap cheese for Samuel Pepys . Record 3. investigation in a table. 4. Investigate how materials change when a force is exerted on them. Create mobiles and sculptures. 	<p>Annually- Building on simple characteristics of properties from year 1.</p>	<p>Art- mobiles and sculptures</p> <p>History – Great Fire of London- why did it burn so quickly</p>	



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	<p style="text-align: center;">Seasonal Changes (termly)</p> <ul style="list-style-type: none"> ➤ observe changes across the 4 seasons <p>observe and describe weather associated with the seasons and how day length varies</p>	<ol style="list-style-type: none"> 1. Go for second walk around the grounds and make comparisons between winter and spring growth. Record in a table and make predictions. 2. Observe weather patterns and discuss order of seasons. Design a fifth season and explain where would you put it. 3. Study what is night and what is day. Build on year 1 learning of night and day. Study rotation of the Earth 	<p>Termly- evidence in Class scrap books recapping on knowledge from Year 1</p>		<p>Knowing the names of common local trees.</p> <p>Understanding seasonal change through direct observation/comparison</p>
	<p style="text-align: center;">Earth & Space</p> <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 <p>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>	<ol style="list-style-type: none"> 1. Act out this concept and record in books. 2. Study the planets, the order and how they orbit around the sun. 3. Make a space mobile based on learnt knowledge 4. 	<p>Bi-annually- Building on the study of planet earth in EYFS</p> <p>Termly revisit from studying day and night above</p>	<p>Art – draw planets shading , Starry Night Van Gogh</p> <p>Computing – planets fact poster</p>	<p>Katherine Johnson (Space)</p> <p>Neil Armstrong</p>



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Year 1					
Topic Enquiry focus	NC Key Skills and Knowledge	Lesson Progression	Spiral knowledge building Termly/Annually	Curriculum Cohesion /Cultural Capital	Cultural capital/ Significant Historians
Is it always light when you have your tea?	Seasonal Changes (termly) <ul style="list-style-type: none"> ➤ observe changes across the 4 seasons ➤ observe and describe weather associated with the seasons and how day length varies 	<u>Seasons (4 lessons)</u> <ol style="list-style-type: none"> 1. Order of seasons 2. Months within seasons 3. Weather of seasons 4. Clothes to wear 5. Favourite season 6. Birthdays – month and season <u>Weather (6 lessons)</u> <ol style="list-style-type: none"> 1. Different types 2. Weather symbols 3. Weather in different parts of country 4. Recording the weather/ weather charts 5. Weather around the world 6. Position of the sun/ day length and changes 	Termly- evidence in Class scrap books recapping on knowledge from EYFS Observe a tree and planted area top show changes across the year (Do at regular times across the term during snack/ story time)	Maths- months Charts/ recording Geography- Bears – continents weather Ghana weather	Lucy Martin (BBC weather presenter with a disability)
What does material mean?	Everyday materials <ul style="list-style-type: none"> ➤ Distinguish between and 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. 	<ol style="list-style-type: none"> 1. Sort materials and label 2. Sort materials by properties 3. Opposite properties 4. Materials for construction – material walk around school 5. Materials for a bridge – what properties does a bridge need? 6. Testing materials to build a bridge. 7. Bridge building 	Annually- Building on from EYFS work on exploring uses of materials	DT/ history - bridges	Stephanie Knolek (materials) Trip to Henley Bridge/River and Rowing Museum



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	<ul style="list-style-type: none"> ➤ Describe simple physical properties of every day materials. ➤ Compare and group a variety of everyday materials based on physical properties. 	Evaluation			
Are humans animals?	<p>Animals including humans</p> <ul style="list-style-type: none"> ➤ Identify and name common animals including fish, amphibians, reptiles, birds and mammals. ➤ Identify a variety of common animals that are carnivores, herbivores and omnivores. ➤ Describe and compare the structure of a variety of animals (fish, amphibians, reptiles, birds and mammals) ➤ Identify, name, draw and label the basic parts of the human body and say which part is associated with which sense. 	<ol style="list-style-type: none"> 1. Classifying animals (fish/birds etc) and compare structures 2. Look at the human body and label parts 3. Sorting animals by how they eat 	Annually- Building on observations and studies on mini-beasts and animals in EYFS, including the lifecycle of butterflies in EYFS		<p>Marie Maynard (Healthy eating)</p> <p>The children will also study their class bird and birds that visit our school:</p> <ul style="list-style-type: none"> ➤ Robins, Swans, ➤ Red Kites, Robins, Blue Tits, Great Tits, Pigeons
Is a tree a Plant?	<p style="text-align: center;">Plants (termly)</p> <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 	<ol style="list-style-type: none"> 1. What is a plant? 2. Why are they important to us? 3. Name some plants 4. Name edible plants 5. Plant seeds (Runner beans)/ observe seeds/ design a seed packet 6. Parts of a plant (roots/stem/ leaves/ flower/seedhead) 7. Label a plant 4. Leaf shapes 	Termly- Building on basic plant knowledge and structure from EYFS	<p>Literacy- Jasper's Beanstalk</p> <p>Ghana- food and crops</p>	<p>George Washington Carver (plants and crops)</p> <p>All children will take termly walks in our grounds to observe, study and be able to identify the following plants and trees to build on their</p>



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					<p>growing knowledge.: Willow, Oak, Conifer, Beech, Silver Birch</p> <p>Lavender, Daffodils, Buddleia, daisy, Buttercup, Tulip</p> <p>Language of evergreen, deciduous</p> <p>Cook and try unknown vegetables/ fruits</p>
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EYFS					
<u>Topic Enquiry focus</u>	<u>Key Skills & Knowledge</u> ELG: Understanding the world - natural world ➤ Creating and thinking critically ➤ Playing and exploring ➤ Active learning	<u>Lesson Progression</u>	<u>Spiral knowledge building</u> Termly/Annually	<u>Curriculum Cohesion</u>	<u>Cultural capital/ Significant Historians</u>
<u>Who am I?</u>	Explore the natural world around them, making observations and drawing pictures of animals and plants ;	<p>Minibeasts: What is a minibeast? Simple classification. Parts of an insect – Sing ‘Head, Thorax Abdomen’ song. Habitat introduction – why do certain minibeasts live where they do? Make a bug hotel and wormery. Minibeast hunt – checklists and recording sheets.</p>	Termly – build on early life experiences and	Art: Minibeast sculptures, Matisse ‘The Snail’ collage Literacy: Story writing based on Superworm, writing minibeast riddles,	Marie Curie (people who help us) Alexander Fleming Jane Goodall (animals) Mary Anning (fossils)



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		<p>Dinosaurs: What is a dinosaur? Simple classification. Dinosaur diet: carnivore/herbivore How do we know dinosaurs existed? What does extinction mean?</p>	<p>preschool learning.</p>	<p>minibeast facts. Role Play garden centre, then dinosaur museum. History: Fossil ageing, key figure in Mary Anning Geography: simple globe work – naming North and South poles, conservation – polar ice caps Maths: measuring minibeasts, measuring how long dinosaurs really were by marking out in the playground classifying and grouping, counting sets of dinosaurs/minibeast legs.</p>	<p>The children will also study their class bird and birds that visit our school: ➤ Cygnets, Red Kites, Robins, Blue Tits, Great Tits, Pigeons</p>
<p><u>What do I need to grow?</u></p>	<p>Explore the natural world around them, making observations and drawing pictures of animals and plants;</p>	<p>Growing Plants: How to plant seeds, simple observations recorded e.g. plant height, sketching and naming key parts of a flowering and non-flowering plant. Have herb garden and vegetable area to tend to and observe – discuss what plants need to grow well. Minibeasts:</p>	<p>Termly - build on early life experiences and preschool learning build on knowledge and understanding from prior topic</p>	<p>Art: painting symmetrical patterns, minibeast sculptures, sketching plants Maths: symmetry and butterflies, measuring plants</p>	<p>All children will take termly walks in our grounds to observe, study and be able to identify the following plants and trees to build</p>



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		<p>Simple life cycle: have pet caterpillars, watch them change through the stages of their life cycle. Record changes through observations and drawings</p> <p style="text-align: center;">This is Me: How have I changed from being a baby – what can I do now? Simple life cycle of a human.</p>	<p>focus e.g. human life cycle to butterfly and frog life cycle.</p>	<p>ICT: Simple coding – Bee Bots Literacy: drawing and labelling life cycles, labelling plant names for herb garden History: learning the passing of time through photographs from baby through toddler to now.</p>	<p>on their growing knowledge.:</p> <ul style="list-style-type: none"> ➤ Willow, Oak, Conifer, Beech, Silver Birch ➤ Lavender, Daffodils, Buddleia, daisy, Buttercup, Tulip <p>Language of evergreen, deciduous</p>
<p><u>Where do I like to live?</u></p> <p><u>Why do I live here?</u></p>	<p>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;</p>	<p>Hot and Cold Lands: Where do penguins and polar bears live? Why is this habitat important for them? How can we help protect polar ice?</p>	<p>Termly</p>	<p>Geography: simple globe work – naming North and South poles, conservation – polar ice caps</p>	



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<p><u>Would you live in space?</u></p>	<p>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;</p>	<p>Earth and Space What planet do we live on? Where do we live on Earth? What shape is Earth? Name planets in our Solar System and learn simple facts about them. Simple explanations about how Earth moves around the Sun. Know that the Sun is a star. What is the moon? What is it made of? Is moonlight really light? Experiment with making own craters by dropping ball into sand. Who travels into Space? How do they get there? Is there gravity on the moon? Learn phases of the moon through cooking.</p>	<p>Termly link knowledge from forces in Spring Term to build on early concept of gravity.</p>	<p>Literacy: Reading and writing Space facts. Drawing story maps from 'The Way Back Home' and 'Whatever Next!' Making lists for Space. Role Play space station. Geography: Knowledge of where we live on Earth, its shape, its moon</p>	<p>Maggie Aderin Pocock (Space) Tim Peake (Space)</p>
<p><u>What changes can I see around me?</u></p>	<p>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>Seasonal changes Welly Walks each season: Looking for changes that can be observed – leaf fall in Autumn. Why do they change colour? Name key trees and plants in our environment – which are evergreen? Which birds can we see/hear at each time of year? Why? Playing with shadows: How are shadows made? Drawing shadows made by toys</p>	<p>Termly</p>	<p>Art: Leaf rubbings, leaf sculptures, blossom branches, drawing shadows Maths: Comparing sizes of shadows, heights of trees. Geography: naming key features of natural environment Maths: counting and grouping e.g. conkers on a ten frame</p>	



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<p><u>What am I made from?</u></p>	<p>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<p>Materials: What do different materials feel like? Look like? Develop key vocabulary of comparison e.g. shiny/dull rough/smooth Which material would be best suited for a job? Use Three Little Pigs’ houses as springboard for investigating – strength, durability. Use The Three Billy Goats Gruff to build a bridge that can hold each Billy Goat Forces: How did the wolf blow down the houses? Use hairdryer and houses built to experiment. Make our own kites to show the natural force of wind. Explore floating and sinking in exploratory play using a range of objects, plus: How many cubes does it take to sink a toy boat?</p>	<p>Annually</p>	<p>Literacy: Labelling houses and bridges, making story maps D&T: Making kites, building houses and bridges Maths: recording results of experiment in table</p>	<p>Sir Isaac Newton/Stephen Hawking (Forces)</p>
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Notes:

- Our choice of Signiant scientists are representative of both the culturally diverse society we live in and the cultural heritage of our families in school.