

Science progression of knowledge and skills

Level expected at the end of EYFS

- Looks closely at similarities, differences, patterns and change
- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- 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.
- Make observations of animals and plants and explain why some things occur, and talk about changes?

KS1 National curriculum expectations

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.

<u>Year 1</u>	<u>Year 2</u>
<p>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>identify and describe the basic structure of a variety of common flowering plants, including trees.</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 a suitable temperature to grow and stay healthy.</p>
<p>distinguish between an object and the material from which it is made</p> <p>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>describe the simple physical properties of a variety of everyday materials</p> <p>compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>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>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>
<p>observe changes across the four seasons</p> <p>observe and describe weather associated with the seasons and how day length varies</p>	
<p>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>identify and name a variety of common animals that are carnivores, herbivores and omnivores</p>	<p>explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>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</p>

	<p>identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>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>notice that animals, including humans, have offspring which grow into adults</p> <p>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>

Plants				
	Nursery	Reception	Year 1	Year 2
Birth to 5 ELG National Curriculum	<ul style="list-style-type: none"> Comments & asks questions about aspects of their familiar world such as place where they live or the natural world. Can talk about some of the things they have observed, plants, animals, natural and found objects Talks about how things happen & how things work. Developing an understanding of growth, decay & changes over time. Shows care and concern for living things & environment. 	<p>Looks closely at similarities, differences, patterns and change</p> <p>ELG: Make observations of animals and plants and explain why some things occur, and talk about changes?</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</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 a suitable temperature to grow and stay healthy</p>
Key ideas And Knowledge	<p>Gathering seeds from fruit and natural environment (sycamore tree – helicopter seeds)</p> <ul style="list-style-type: none"> Handling plants, seeds, vegetables, leaves, fruit to describe what they feel, taste and smell. Planting and caring for seeds and bulbs and drawing 	<p>Plant seeds and care for living plants. Understand the key features of the life cycle of a plant in local environment.</p>	<p>Can you name a wild plant, garden plant, deciduous and evergreen tree in school locality?</p> <p>Can you label basic structure of a plant?</p>	<p>Link to living things and habitats: - Identify and name a variety of plants in their habitats. Including microhabitats.</p>

	<ul style="list-style-type: none"> • Growing vegetable tops • Observing and photographing /drawing what happens when fruit, vegetables and flowers how plants grow and die and are left to decay. • Gathering seeds and digging up bulbs of the plants they grow. 	<p>Begin to understand the need to respect and care for natural environment and living things</p> <p>Observe the inside of fruits and vegetables. Explore a variety of different fruit and vegetables and to be able to distinguish between a fruit and a vegetable.</p> <p>Differentiate between healthy and unhealthy food</p>	<p>What is an evergreen and deciduous tree? What do plants need to grow? Classify leaves, seeds, flowers etc. using a range of characteristics. Identify plants by matching them to named images. When further afield can you spot plants that are the same as those in the local area studied regularly, describing main features Can you make close observations of leaves, seeds and flowers. Plant seeds and make observations of how plants change over time</p>	<p>What does a seed and bulb need to grow? Find out and describe how plants need water light and correct temperature to stay healthy. What is the process of reproduction and growth in plants? Observe and describe how seeds and bulbs grow into mature plants</p>
Scientific Enquiry	<p>Children to use simple equipment like magnifying glasses, sorting rings, clipboard and paper and pencils. Talk about what they are doing. What does it remind you of? What do you think will happen next?</p>	<p>Encourage children to <u>ask questions</u> about the plants they find. <u>Classify</u>: Name and describe plants they find in outdoor classroom and wider school grounds <u>Observe over time</u>: Changes seen in growing plants. Children should handle plants, seeds, vegetables, leaves, fruit to describe what they feel, taste and smell</p>	<p>Observe 1 deciduous and 1 evergreen tree throughout the year - Collect information on features that change during the year and record tree changes in table</p> <p>Plant bean seeds and keep an 'Observational diary /Bean dairy'</p> <p>Describe structure of a flowering plant and trees – Name and label parts.</p>	<p>Identify and classify seeds/bulbs and leaves and flowers of Sunflowers and daffodils/Summer flowering bulbs (dahlias?). Using hand lens/magnifying glass – to look at seeds</p> <p>Plant and observe growth of seeds and bulbs and make comparison between plants as they grow. (use table)</p>

		<p><u>Pattern seeking</u>: Look for plants in different areas of school grounds and when they find plants on school trips</p> <p><u>Record</u>: Draw what ch see</p>	<p>Compare 2 different plants looking at leaves, seeds, flowers.</p> <p>Science week: Carnation simple test – make a prediction and describe and draw what happened and why?</p> <p>When further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them.</p>	<p>Plants experiment - Carry out a simple test using simple equipment to explore/investigate what plants need to grow healthily/thrive.</p>
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Living things and their habitats

Birth to 5 ELG National Curriculum	Nursery	Reception	Year 1	Year 2
	<p>Birth to 5 Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Begin to understand the need to respect and care for the natural environment and all living things.</p> <ul style="list-style-type: none"> • Comments and asks questions about aspects of the familiar world such as the place where they live or the natural world. • Can talk about some of the things they have observed such as plants animals, natural and found objects. • Talks about why things happen and how things work. • Developing an understanding of growth, decay & changes over time. • Shows care & concern for 	<p>Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live.</p>	N/A	<p>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</p>

	living things and the environment.			<p>animals in their habitats, including microhabitats.</p> <p>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>
Key ideas And Knowledge	<p>Explore natural objects from the surrounding environment Which natural objects are from plants, animals or neither? - seeds, conkers, pinecones, acorns, twigs, bark, shells, feathers.</p> <p>Using a magnifying glass or a tablet observe the natural objects in a collection closely, drawing and using natural objects to make pictures and patterns</p> <p>Observe plants, animals and mini beasts in environment- use magnifying glass/bug pots.</p>	<p>Opportunities to explore the animals and plants in the surrounding natural environment</p> <p>E.g. Bulbs in planters, Birds migrating south in Autumn. Animals in natural habitats</p> <p>Name and describe plants and animals, mini beasts they find in the school grounds – draw and take photos and say where they found them.</p> <p>Look for mini beasts in different areas of the school grounds. Look for plants in different areas of the school grounds.</p>		<p>Can you identify different habitats (e.g. woodland, rainforest, polar and ocean) and name a variety of plants and animals in their habitats.</p> <p>What is a habitat and microhabitat and identify which animals and plants live there. Compare animals and plants that live in different habitats rainforest, polar and ocean</p> <p>Describe how living things depend on each other? Identify carnivore, herbivore, omnivores and identify these animals in their habitats.</p> <p>What is a food chain? Can you explore and compare differences between living, dead and non-living (never alive).</p>

<p>Scientific Enquiry</p>	<p>Children to use simple equipment like magnifying glasses, sorting rings, clipboard and paper and pencils. <u>Explore, Observe, talk</u> about what they are doing and what they can see. What does that remind you of? What do you think will happen next?</p>	<p><u>Identify, sort and group</u>, farm animals, wild animals at the zoo, pets, sea animals, mini beasts. Identify similarities and differences between the plants and animals they find in the surrounding natural environment and the contrasting one they visit. Ask questions about the plants and animals they find. <u>Pattern seeking</u>. Where are plants and animals found? Where else? <u>Describe and talk</u> about what they are doing/ draw what they can see. <u>Ask</u> ch – I wonder What does that remind you of? What do you think will happen next?</p>		<p>Make food chains Describe and compare animals, plants and their relationships with each other and their habitats.</p>
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Materials

	Nursery	Reception	Year 1	Year 2
<p>Birth to 5 ELG National Curriculum</p>	<p>*Use all their senses in hands-on exploration of natural materials. *Explore collections of materials with similar and/or different properties. *Talk about the differences between materials and changes they notice. • Comments & asks questions about aspects of their familiar</p>	<p>ELG: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</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>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>world such as the place where they live or the natural world.</p> <ul style="list-style-type: none"> • Can talk about some of things they have observed such as natural & found objects. <p>Talks about why things happen and how things work.</p> <ul style="list-style-type: none"> • Developing an understanding of growth, decay & change over time. • Shows care and /concern for living things and the environment. 		<p>wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>
Key ideas And Knowledge	<p>Opportunities to explore a range of materials in a sensory way especially through touch, including more unusual materials Uses all senses in hands on exploration of natural materials.</p> <p>Explores collection of materials with familiar and/or different properties. Talks about the differences between materials and changes they notice. Explores how things work.</p> <p>Opportunities to shape and join materials</p> <ul style="list-style-type: none"> • Opportunities to change materials • Talks about why things happen and how things work <p>Explore and talk about different forces they can feel. Notices and investigates detailed features of objects in environment.</p>	<p>Describes what they see hear and feel whilst outside.</p> <p>Ice/snow melting.</p> <p>When cooking, making Gingerbread, bread dough, cupcakes, biscuit icing. Eggs, boiled.</p> <p>Knows about the similarities and differences in relation to materials. Makes models from re-cycled materials with a range of materials, including natural materials they have gathered from the environment. Can name the material they are using and why.</p>	<p>Can you name everyday objects and what materials they are made from?</p> <p>What is the difference between an object and a material?</p> <p>What do materials feel like?</p> <p>What are the properties of materials?</p> <p>Can you compare the properties of materials?</p> <p>Can you sort and classify objects made of one material in different ways e.g. a group of materials made of metal/ wood.</p> <p>Can you sort in different ways one type of object made from a range of</p>	<p>Recap from Year 1 - What are objects made from? Do different materials have different properties?</p> <p>How are everyday materials used? - including wood, plastic, metal, glass, brick, rock, paper and cardboard and say how it is suited for its purpose.</p> <p>Which materials would be best and why?</p> <p>Identify and compare uses of different materials</p>

			material – e.g. bowls made from different materials. Can you classify materials based on their properties	How can we change the shape of materials? Can you find out how solid objects change shape.
Scientific enquiry	<u>Play, observe, ask</u> – Children combine, shape join materials, mix ingredients, test for floating and sinking, explore magnets, and Materials –gloop, gellibaff, shaving foam, foam burst shower gel Build junk models joining materials using scissors, hole punch/tape, string. Making pizza/ cakes /biscuits. Cook popcorn-in microwave. Remove toys from ice, add baking soda and washing up liquid to water, add currants to fizzy water /lemonade, add bicarb of soda to vinegar to make potion, or volcano. Making smoothies/hot chocolate milk. Use magnifying glasses, sorting hoops	Which egg survives a fall, natural or boiled? Examines changes over time and change that may be reversed e.g. melting ice, Use carefully framed open ended questions such as: How can we/ What would happen/ I wonder...?	Sort objects and materials Test the properties of objects – e.g. Best material to make a parachute	Conduct experiment to see if simple materials (play dough, blue tack, sponge, elastic band, rubber ball, paper cardboard), can be squashed, bent, twisted stretched. Test the best material for a bucket – which materials are waterproof, make prediction first

Animals including humans

	Nursery	Reception	Year 1	Year 2
Birth to 5 ELG Objectives from National Curriculum	Birth to 5 *Use all their senses in hands-on exploration of natural materials. *Begin to make sense of their own life-story and family's history. *Understand the key features of the life cycle of a plant and an animal. *Begin to understand the need to respect and care for the natural environment and all living things Comments and asks questions	ELG: Explore the natural world around them, making observations and drawing pictures of animals. Know some similarities and differences between the natural world around them and contrasting	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.	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>about aspects of their familiar world such as the place where they live or the natural world.</p> <ul style="list-style-type: none"> • Can talk about things they have observed such as plants, animals, natural & found objects. Talks about why things happen and how things work. • Developing an understanding of growth, decay and changes over time. Shows care & concern for living things & the environment. 	<p>environments, drawing on their experiences and what has been read in class.</p> <p>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter</p>	<p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>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>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>
Key Ideas And Knowledge	<p><u>Play, observe, ask</u> – Children look at an animal, maybe draw (record) it and say what they see. Sing animal nursery rhymes – play with farm, wild animals, polar animals, dinosaurs, mini beasts Caring for eggs and the young animals that emerge, such as chicks, caterpillars, • Observing and talk about how young animals change over time. Sort animals and their young. Children record their observations when comparing animals and their young, observing how young animals change over time.</p> <p>Talks about why things happen and why things work, why did the caterpillar get so big and fat? Playing guessing games where children pick an object and either describe it or are asked questions in</p>	<p>Describe people who are familiar to them. Learning about how to take care of themselves</p> <p><u>Classification</u> - Sort images of people according to their characteristics.</p> <p>Identify, sort and group, Farm animals, wild animals at the zoo, pets, sea animals, mini beasts.</p> <p><u>Record</u> -Use mirror to look at face, create pictures or collage of themselves, friends, family and community, make hand and footprints and fingerprints. Children draw an animal, Sea</p>	<p>What are our senses? Name body parts. Which body part is used and good at feeling? Which food or flavours can I identify by taste? Which smells can I identify?</p> <p>people – are people with big feet the tallest?</p> <p>Can you identify and name animals? Can you classify animals? Including fish, amphibians, reptiles, birds and mammals. Compare structure of two animals from the same or different groups, including pets.</p>	<p>What happens to our human bodies as we grow? Describe human life cycle. Describe basic needs of humans and animals What do we need to be healthy? Do other animals grow in the same way as us? (Can you match the animals to their offspring?) Describe importance for humans of exercise, balanced diet, hygiene. Why is it important to exercise? Why is it important to keep clean?</p>

	<p>order to identify it. Playing listening games.</p> <p>Caring for eggs and the young animals that emerge, such as caterpillars,</p>	<p>animals, pets, Farm animals, mini beasts, ladybirds, worms, wild animals at the zoo and say/talk what they see.</p> <p>Why is it important to stay healthy - healthy diet, healthy and unhealthy food.</p> <p>hygiene, importance of exercise and teeth brushing</p> <p>Learn how animals from a different habitat are cared for.</p> <p>Learn about animals in a different habitat.</p> <p>Birds migrating south in Autumn. Animals at the zoo. Mini beasts, worms, ladybirds, patterns on animals, Live ladybirds - Observe life cycle of ladybird? Learn about frogs/tadpoles?</p>	<p>Classify animals according to what they eat - carnivore, herbivore, omnivore</p>	
<p>Scientific Enquiry</p>	<p>Children to use simple equipment like magnifying glasses, sorting rings, clipboard and paper and pencils.</p> <p>Use simple tick sheets to identify mini beasts, caterpillars/butterflies, plants observed</p> <p><u>Explore, Observe, talk</u> about what they are doing and what they can see. What does that remind you of? What do you think will happen next?</p>	<p>Use simple tick sheets to identify mini beasts observed</p> <p>Observe changes that happen to a tadpole/frog/ladybird</p>	<p>Ask simple questions/gather/ data / fill out a pictogram</p> <p>Identify, name, classify describe, sort and label common animals, pets and wild animals, and sea animals</p> <p>Identify and name animals that are herbivores, carnivore, omnivore – sort animals into table</p>	<p>Describe human and animal's life cycles</p> <p>Perform a simple test to discover the importance of exercise</p> <p>Design a healthy snack</p>

			Compare 2 animals using a table and list features	
Seasonal changes				
	Nursery	Reception	Year 1	Year 2
Birth to 5 ELG National Curriculum	<p>Birth to 5</p> <ul style="list-style-type: none"> • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. • Can talk about some of The things they have observed such as plants animals, natural and found objects. • Talks about why things happen and how things work. • Developing understanding of growth, decay and changes over time. • Shows care and Concern for living things and the environment. 	<p>Birth to 5/ELG</p> <ul style="list-style-type: none"> • Looks closely at similarities, differences, patterns and change <p>ELG: Make observations of animals and plants and explain why some things occur, and talk about changes?</p>	<p>Observe change across 4 seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>	N/A
Key Ideas And Knowledge	<p><u>Play</u> – Children look at different weather, play in puddles, touch ice and snow, enjoy water play in summer. Play in leaves in Autumn, pick wild flowers and experience planting in Spring - maybe draw and say what they see.</p> <p><u>Observe</u> – I see/I notice.... children observe seasonal displays through the year. Children handle and identify collections of Autumn objects, pine coats, conkers, leaves, acorns, spring plants and summer plants and vegetables, and describe what they feel, hear and maybe even smell / taste.</p>	<p>Explore Autumn – what is happening to the trees? Go on an Autumn walk and observe what is happening to trees. Learn about harvest time Understand the sun gives out light during the day and it is dark at night because there is no sunlight Exploring shadows and light, snow, ice, melting. Spring planting.</p>	<p>What is the weather like in Autumn, Winter, Spring and Summer? What changes happen from season to season? What plants can I find in Spring?</p> <p>Can you collect information about the weather and changes in day length throughout year. Can you collect information about weather regularly and</p>	

		<p>Observing closely and drawing the plants in the school grounds at different times in the year</p> <p>Looking for birds and other animals throughout the year using binoculars. Sharing books and videos about animals that migrate or hibernate over winter, gather food in autumn, build nests and lay eggs in spring etc. .</p>	<p>present this information in tables and charts to compare this weather across all 4 seasons. To show features of change in seasons – e.g. plants, animals, humans. Present this information in different ways to compare the seasons. Gather data about day length regularly throughout the year and present this to compare the seasons</p>	
<p>Scientific Enquiry</p>	<p>Children to use simple equipment like magnifying glasses, sorting rings, clipboard and paper and pencils. <u>Explore, Observe, talk</u> about what they are doing and what they can see. <u>Ask</u>ch – I wonder..... What does that remind you of? What do you think will happen next?</p>	<p><u>Classification</u> - Which clothes are suitable for each season? <u>Observing over time</u> observing plants, animals and puddles. observing living things throughout the year. How does a puddle change over time? How does a snowman change as it melts? How does the natural world change with the seasons? Children record their observations_Children to <u>use simple equipment</u> like magnifying glasses, sorting hoops, clipboard and paper and pencils. Children</p>	<p>Collect information about -weather, changes in temperature, day length regularly and present this information in tables and charts to compare weather across all 4 seasons.</p> <p>Compare evergreen and deciduous tree through the year, observing and noting changes (Link to plants).</p>	

		<p>use equipment to measure when exploring the size of puddles. Ch identify plants, animals and weather they see. What do humans wear in different seasons, use of reflective materials to shine/ reflect light in winter – why?</p> <p><u>Researching using secondary sources.</u></p> <p>Find out about how animals behave in different seasons. Find out about the weather and seasons.</p>		
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