

Science Curriculum Skills Progression

INTENT: The science curriculum at Lyndhurst is ambitious and through clear differentiation, provides challenge for all pupils. This is achieved through the use of high quality questioning, dynamic teacher response to pupil needs as well through rich and purposeful learning opportunities. At Lyndhurst we capitalise on children's prior life experiences and ensure all children are exposed to a wide range of meaningful scientific experiences. For example, we ensure the children have regular access to exploratory scientific activities, including opportunities to plan and follow their own line of questioning in both research and testing. We use the school location to support and make learning relevant, using outside spaces, the local environment and beach to enthuse and inspire excitement and curiosity about the world we live in. We use role play and video to bring to life a world further from our door and inspire awe and wonder. We aim to stimulate interest in scientific careers by promoting the important roles scientists play in our lives through their skills and expertise.

Our school values underpin teaching and learning in science. Our values of honesty and fairness are reinforced through the process of scientific investigation. We encourage children to respect others ideas, beliefs and opinions and respect the environment. We introduce children to issues relating to climate change and help them to understand how we can both impact and protect our planet. We provide our children with sufficient scientific skills and knowledge to access the next stage of school learning. They will also have the scientific knowledge required to understand the uses and implications of science today and for the future.

Our aim is for pupils in the EYFS is to:

- *show curiosity and interest in the features of objects and living things*
 - *describe and talk about what they see*
 - *show curiosity about why things happen and how things work*
 - *show understanding of cause-effect relations*

Our aim is for pupils in KS1 is to:

- *develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics*
- *develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them*
- *are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future*

SEND Provision

At Lyndhurst Infant School we believe that every child is respected as an individual and has the right to learn and develop their talents and abilities (Article 29) We adapt the curriculum and supply resources to suit individual needs, including; social, emotional and mental health, physical, sensory and cognitive, so that every child can access the curriculum and further their learning.

Children with complex needs including children with autism and social communication needs access the curriculum at their own level of personal development. This may not follow the continuum as they tend to have a spiky profile, therefore not necessarily accessing all aspects of the progression map in order. For example, in reading, a child may be able to read complex texts, but not have the comprehension skills to match. Children with SEND including autism and social communication needs can find predicting what may happen in an experiment a challenge. Teamwork and respecting and understanding other's opinions can be difficult. Visuals are used to support understanding.

	EYFS	YEAR 1	YEAR 2
IMPLEMENTATION <u>Skills - Working Scientifically</u>	<p>Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.</p> <p>Beginning:</p> <ul style="list-style-type: none"> To use play to explore natural processes like melting and mixing ingredients together. <p>Within:</p> <ul style="list-style-type: none"> To begin to experiment with using objects to create shadows, or use magnets to attract other objects. <p>Expected:</p> <ul style="list-style-type: none"> To observe and comment on natural processes such as ice melting, a sound causing a vibration. 	<p>Beginning:</p> <ul style="list-style-type: none"> To begin to observe closely, using simple equipment. To begin to use some science words. <p>Within:</p> <ul style="list-style-type: none"> To begin to Identify and classify with some support. To begin to say what happened in my investigation. <p>Expected:</p> <ul style="list-style-type: none"> To begin to use simple features to compare objects, materials and living things and, with help, decide how to sort and group them. To begin to use observations and ideas to suggest answers to questions and recognise that they can be answered in different ways. 	<p>Beginning:</p> <ul style="list-style-type: none"> To observe simple changes over time and, with guidance, begin to notice patterns and relationships. Gather and record data with some adult support, to help in answering questions. <p>Within:</p> <ul style="list-style-type: none"> Use observations and ideas to suggest answers to questions recognising that they can be answered in different ways. To use some different ways to record data to help answer questions. <p>Expected:</p> <ul style="list-style-type: none"> To compare, record and communicate data and findings in a range of ways to help answer questions. To use simple secondary sources to find answers such as find information to help me from books and computers with help.
Vocabulary	Explore, find out, sort	Experiment, question, group, compare, equipment, observing, measure, observe	Fair test, classify, contrast, describe, record (diagram, chart, block graph, map), mass/weight, result, Identify
IMPACT	Children will have been given regular opportunities to think and work like scientists and will have developed an understanding of scientific processes.		

	Children will have used practical scientific methods, processes and skills initially with some adult support but then increasingly independently.		
IMPLEMENTATION <u>Animals Including Humans</u>	EYFS	YEAR 1	YEAR 2
	<p>Describe what they see, hear and feel whilst outside.</p> <p>Beginning:</p> <ul style="list-style-type: none"> • Begin to observe changes in the natural world including recognising some animals or insects outside. <p>Within:</p> <ul style="list-style-type: none"> • To begin to describe and comment on things they have seen whilst outside, including plants and animals. <p>Expected:</p> <ul style="list-style-type: none"> • To begin to use observations to draw pictures of the natural world, including animals and plants. • With support beginning to name and identify some common plants. 	<p>Beginning:</p> <ul style="list-style-type: none"> • To begin to identify and name some common animals and group them into animal groups (Fish, amphibians, reptiles, birds and mammals). • To name and identify some basic body parts. <p>Within:</p> <ul style="list-style-type: none"> • To identify and name some common animals and group them into animal groups (Fish, amphibians, reptiles, birds and mammals) and diet groups (carnivore, omnivore, herbivore). • To identify, name and draw some basic body parts and name some of the senses through activities comparing different textures, sounds and smells. <p>Expected:</p> <ul style="list-style-type: none"> • To identify and name a variety of common animals and their diets, describing the structure of some common animals. • To identify, name, draw and label the basic parts of the human body and say which part of the 	<p>Beginning:</p> <ul style="list-style-type: none"> • To identify and name a variety of common animals and their diets, describing the structure of common animals. • To begin to observe through video or first-hand observations that animals, including humans, have offspring that grow into adults. <p>Within:</p> <ul style="list-style-type: none"> • To observe and describe through video or first-hand observation that animals, including humans, have offspring which grow into adults. • To begin to describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. <p>Expected:</p> <ul style="list-style-type: none"> • To ask questions and find out what animals, including humans, need for survival, describing the basic needs (water, food and air). • To ask questions about what humans need to stay healthy, and suggest ways to find answers to their questions.

		body is associated with each sense.	
Vocabulary	Body parts. Backbone, skeleton, soft body, shell, adapted, hibernate, migrate, Predator, prey, nocturnal, adult/parent, baby, lifecycle: - Egg, caterpillar, chrysalis, butterfly, birds (owl, duck), insects/bugs/mini-beasts (lacewing, ladybird, woodlouse, bee, wasp, spider, tarantula, earthworm, snail, locust, cricket, millipede, butterfly, caterpillar), fish, reptiles (snake, tortoise, gecko), amphibians, mammals (mouse, shrew, vole, hare, fox).	Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak	Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene
Key People and 'real-life' links	Links to the following occupations: Marine Biologist, Vet, Zoologist and Natural broadcaster. Beach Trips, Marine Conservation Day, Hedgehog study		
IMPACT:	Children will have learnt about a variety of different animals, especially those local to them, and will be able to describe and make comparisons using key vocabulary. Children will have an understanding of the human body linking parts to senses. They will be able to describe the importance of leading a healthy lifestyle with a focus on food, exercise and hygiene.		

	EYFS	YEAR 1	YEAR 2
IMPLEMENTATION <u>Plants</u>	Describe what they see, hear and feel whilst outside. Beginning: <ul style="list-style-type: none"> Begin to observe changes in the natural world including how plants grow. Within: <ul style="list-style-type: none"> To begin to describe and comment on things they 	Beginning: <ul style="list-style-type: none"> To begin to identify and name some common wild and garden plants. To begin to identify some of the basic structures of common plants (seed, root). Within: <ul style="list-style-type: none"> To Identify and name a variety of common wild and garden plants 	Beginning: <ul style="list-style-type: none"> To begin to observe and describe how seeds and bulbs grow into mature plants. To begin to observe what plants need to grow. Within: <ul style="list-style-type: none"> To observe how seeds and bulbs grow into mature plants and begin to describe this process. To develop ideas and describe what plants need in order to grow and stay healthy.

	<p>have seen whilst outside, including plants and animals.</p> <p>Expected:</p> <ul style="list-style-type: none"> To begin to recognise familiar plants and animals whilst outside. With support beginning to name and identify some common plants. 	<p>as well as name some deciduous and evergreen trees.</p> <ul style="list-style-type: none"> To identify and begin to describe the basic structure of a variety of common flowering plants (seeds, roots, stem, leaves etc). <p>Expected:</p> <ul style="list-style-type: none"> To Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To Identify and describe the basic structure of a variety of common flowering plants (seeds, roots etc), including trees. 	<p>Expected:</p> <ul style="list-style-type: none"> To observe and know how seeds and bulbs grow into mature plants. To find out through exploration how plants need water, light and suitable temperature to grow and stay healthy and to describe the needs of plants.
Vocabulary	Grow, lifecycle: - roots, shoots, stem, leaves, buds, flower, water, light, warmth, temperature, soil, compost	Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem	Seeds, Bulbs, Water, Light, Temperature, Growth
Key people and 'real-life' links	Links to the following occupations: Gardener, Ground worker, Florist, Agriculture, Farmer		
IMPACT	Children will explore their local environment and be able to name a variety of plants and trees as well as observing how seeds and bulbs grow. Children will be able to confidently explain why plants need water, light and a suitable temperature to grow and stay healthy.		

	EYFS	YEAR 1	YEAR 2
IMPLEMENTATION <u>Living Things and their Habitats</u>	Children know about similarities and differences in relation to Places: <ul style="list-style-type: none"> • Different animal habitats • Seaside and Worthing Town 	Not taught explicitly in Year 1	Beginning: <ul style="list-style-type: none"> • To build on knowledge to describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets). • To begin to explore the differences between things that are living, that are dead and that have never been alive. Within: <ul style="list-style-type: none"> • To explore and begin to compare the differences between things that are living, that are dead and that have never been alive. • To begin to investigate and describe the basic needs of animals, including humans, for survival (water, food and air). Expected: <ul style="list-style-type: none"> • 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 animals and plants and how they depend on each other. • To investigate and describe the basic needs of animals, including humans, for survival (water, food and air).
Vocabulary	Habitats - woodland, desert, ocean, jungle, Arctic,		Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert

	Microhabitats: - log, stone, tree, dead leaves, soil, seaside.		
Key people and 'real life' links	Links to the following occupations: Marine Biologist, Vet, Zoologist, Conservation, Archaeologist		
IMPACT	Children will be able to compare the differences between things that are living, dead and have never been alive. They will know that living things live in habitats and be able to describe different habitats and their features. Children will be able to describe and produce food chains recognising the relationships within.		
IMPLEMENTATION <u>Materials</u>	EYFS	YEAR 1	YEAR 2
	<p>Beginning:</p> <ul style="list-style-type: none"> To explore how different materials, look, feel and can be used. <p>Within:</p> <ul style="list-style-type: none"> To explore how you can shine light through some materials and not others. <p>Expected:</p> <ul style="list-style-type: none"> To explore how materials sink or float. 	<p>Beginning:</p> <ul style="list-style-type: none"> To begin to name some everyday materials. To begin to compare everyday materials through some of their simple physical properties (hard, strong, soft). <p>Within:</p> <ul style="list-style-type: none"> To name some everyday materials and begin to identify and compare them based on their simple physical properties (rough, smooth, flexible etc). Is starting to distinguish between an object and the material from which it's made. <p>Expected:</p> <ul style="list-style-type: none"> To identify, name and describe everyday materials and compare them on the basis of their simple physical properties. 	<p>Beginning:</p> <ul style="list-style-type: none"> To begin to explore and discover ways to change shapes of some solid objects such as twisting or bending. To identify the uses of some everyday materials. <p>Within:</p> <ul style="list-style-type: none"> To identify the uses of some everyday materials and begin to compare them to each other. To discuss ways shapes of solid objects made from some materials can be changed by squashing, bending and twisting. <p>Expected:</p> <ul style="list-style-type: none"> To identify and make comparisons of the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. To find out and describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

		<ul style="list-style-type: none"> Can clearly distinguish between an object and the material it's made. 	
Vocabulary	Object, material, properties, suitable, pipette, recycling, Properties - Waterproof, strong/weak, dense/less dense, hard/soft, Materials - Bubble wrap, foil, plastic, fabric, paper, straw, sticks, bricks, metal, glass.	Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth	Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil
Key people and 'real-life' links	Links to the following occupations: Archaeologist, geologist, fashion designer, inventor, builder, architect, ironmongery, carpenter, architect, conversation		
IMPACT	Children will be able to name, describe and compare everyday objects and discuss the materials and they are made from and their distinct properties. Children will also be able to compare materials; compare suitability and use specific language to describe how they can be changed.		

	EYFS	YEAR 1	YEAR 2
IMPLEMENTATION <u>Seasonal Changes</u>	<p>Understand the effect of changing seasons on the natural world around them.</p> <p>Beginning:</p> <ul style="list-style-type: none"> To observe the natural world and changes in seasons outside. <p>Within:</p> <ul style="list-style-type: none"> To encourage children to observe how animals 	<p>Beginning:</p> <ul style="list-style-type: none"> To begin to observe changes in each season. To begin to observe the weather associated in each season. <p>Within:</p> <ul style="list-style-type: none"> To observe and describe changes in each season, and begin to describe the weather associated in each season. To observe and name some sources of light (e.g. the sun, flames etc). 	<p>Not taught explicitly in Year 2</p>

	<p>behave differently as the seasons change.</p> <p>Expected:</p> <ul style="list-style-type: none"> • To incorporate their understanding of the seasons and weather in their play. • To observe, note, draw or record the weather outside in different seasons. 	<p>Expected:</p> <ul style="list-style-type: none"> • To observe and describe changes across the four seasons, and the weather associated with each season, including how day length varies. • To observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes. 	
Vocabulary	<p>Seasons: - Spring (growth, baby animals), Summer, Autumn (Harvest), Winter, Weather: - Sun, rain, wind, snow, ice, frost, sleet, hail, cold/warm/hot, day length, day light.</p>	<p>Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p>	
Key people and 'real-life' links	<p>Links to the following occupations: Astrophysicist, meteorologist, optician</p>		
IMPACT	<p>Children will be able to observe changes across the seasons and describe associated weather as well as how the day length varies.</p>		