

Common Road Infant and Nursery School

Our Science Curriculum

Our Science curriculum is guided by the National Curriculum (2014) for KS1 Science, and the statutory early years foundation stage and development matters frameworks. Pupils should be taught about:

- Plants
- Animals including humans
- Everyday materials/ Uses of everyday materials
- Living things and their habitats
- Seasonal changes

Intent

Our intent is that Science teaching will help our young children to understand, explain, observe and question the world around them. We teach carefully sequenced, progressive lessons which focus on accurate vocabulary choices and scientific investigation. It is essential that our children have a wide, rich vocabulary in order to explain what they see in the world around them. We aim to provide a hands-on science curriculum which allows children to question and explore through practical experiences. We give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future.



EYFS – Children learn about the world around them through observation and exploration. They learn about the seasons by observing wildlife and plant life throughout the year, comparing similarities and differences. They learn about animals and their habitats (specifically woodland), and compare their local environment with others. They learn about the different stages of human life, and name parts of the human body. They learn about plants by planting a variety of different plants and observing them closely. Children observe and interact with natural processes, such as ice melting. They explore some common materials through play.

Year 1

Autumn term - Everyday Materials

Children identify and classify objects based on the materials they are made from. They identify and explore properties of common materials – investigating what they are suitable for.

Children begin to observe and explore the seasons – focusing on autumn and its effect on wildlife and plant life.



Year 2

Autumn term – Uses of Everyday Materials

Children identify properties of materials, investigating what they are suitable for. They begin to understand how scientific knowledge can affect our daily lives, particularly focussing on why materials are chosen for different jobs.

Children investigate and explore how materials can be changed.



Year 1

Spring term – Humans / Plants

Children name and locate parts of the body, linking them to each of their senses.

Children will learn about types of common plants and trees, and be able to identify parts of plants. They will observe and compare a variety of plants.

Children continue to observe and compare the seasons – focusing on winter and moving in to spring.

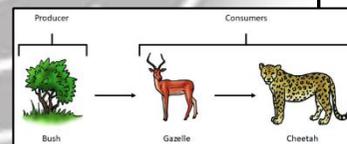


Year 2

Summer term – Living Things and Their Habitats

Children learn about what animals need to survive, the types of environments that they live in, and how they are suited to their environments.

They learn about life cycles by studying butterflies and chicks – looking after and observing them closely.

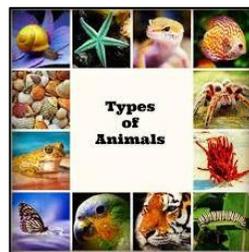


Year 1

Summer term – Animals

Children will classify animals based on their characteristics and diet, and be able to identify features of a range of animals.

Children continue to observe and compare the seasons – focussing on summer.

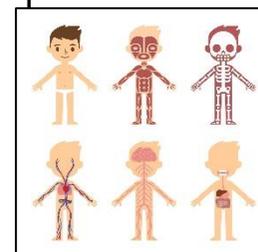


Year 2

Summer term – Plants / Humans

Children learn about the life cycle of a plant by planting, observing and investigating. They learn about what plants need to survive, through investigation and questioning.

Children learn about human health and hygiene through a range of practical activities.



Progression Overview – Statutory early years foundation stage and development matters frameworks/ National Curriculum Objectives

	EYFS	Year 1	Year 2
Plants	<p>ELG 2021</p> <ul style="list-style-type: none"> 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; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	<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 	<ul style="list-style-type: none"> 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
<p>Animals, including humans</p> <p>Living things and their habitats</p>	<p>Development Matters (2020) Explore the natural world around them - Provide children with have frequent opportunities for outdoor play and exploration.</p>	<ul style="list-style-type: none"> 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 Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	<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 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

plants and animals whilst outside.

Understand the effect of changing seasons on the natural world around them –

Guide children's understanding by draw children's attention to the weather and seasonal features.

Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons.

Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change.

Look for children incorporating their understanding of the seasons and weather in their play.

Key knowledge overview – EYFS

Area	Plants	Animals and humans	Materials and forces	Seasons and environments
Key knowledge	<ul style="list-style-type: none"> • I begin to name some common plants – daisy, buttercup, dandelion. • I know that plants can grow from seeds, in soil. • I can name some parts of a plant – petal, stem, leaf, flower and roots. • I know that we need to give plants water and light to help them to grow. • I can name the trunk, branches and leaves of a tree. • I can plant and look after seeds / plants with help from an adult. • I know that I must handle plants carefully. • I can talk about what I see when looking at different plants and trees. • I can talk about the shape of different leaves e.g. round, long, spikey. • I can talk about what the differences between plants that are growing (alive) and those that are dead. • I know that plants grow from seeds, get bigger and eventually die. 	<ul style="list-style-type: none"> • I can make observations using all of my senses. • I know that I use my nose to smell, eyes to see, tongue and mouth to taste, ears to hear and skin / fingers to feel. • I can name and locate my head, shoulders, neck, arms, legs, knees, feet, hands, fingers, toes, ankles, elbows, eyes, ears, nose, mouth. • I know that humans begin life by being born, then grow and change – baby, child, adult. • I can talk about some of the things that I can do, that I couldn't as a baby. • I can talk about some simple differences between each life cycle stage (above). • I know that I must brush my teeth and keep my body clean to stay healthy. • I can name some healthy and unhealthy foods, tasting and describing using my senses. • I can describe some simple features of animals e.g. birds have wings, fish have fins and gills. • I can talk about how some animals change throughout their life – e.g. butterflies begin as caterpillars, make a chrysalis and turn into butterflies. • I know that I must treat other living things respectfully and carefully. 	<ul style="list-style-type: none"> • I can begin to name the materials that common objects are made from e.g. table top is made from wood, chair leg from metal, window from glass. • I can identify materials – wood, glass, plastic, metal, fabric, rock, paper. • I can describe some materials using my senses. • I can identify some simple properties – hard, soft, rough, smooth, stretchy. • I can talk about what happens when different objects are put in water (relating this to floating and sinking). • I can talk about what I see / what happens when I experiment with light sources (light / shadows) • I can talk about, use and observe different forces – push, pull, stretch, bend, 	<ul style="list-style-type: none"> • I can name the four seasons and know general weather patterns associated with them. • I know that the weather can change from day to day. • I can talk about the temperature and weather outside today. • I can observe and talk about how trees and plants change throughout the seasons. • I know that different places in the world have different weather / climates. • I can talk about the climate in the polar regions – cold, snowy, icy. • I can talk about the climate in the desert – hot, dry, sunny.

Investigation	<ul style="list-style-type: none"> • <i>Observation over time</i> – Planting different varieties, looking after them and talking about what they see happening. • <i>Identifying and classifying</i> – Collecting different leaves / petals and sorting e.g. according to shape and colour. 	<ul style="list-style-type: none"> • <i>Identifying and classifying</i> - Grouping animals into appropriate categories based on features e.g. has wings, does not have wings. • <i>Observation over time</i> – Observing what happens in the life cycle of a butterfly, talking about what is happening. 	<ul style="list-style-type: none"> • <i>Identifying and classifying</i> – Sorting objects according to simple properties and what they are made from. • <i>Testing</i> – Floating / sinking. • <i>Testing</i> – Experimenting with light sources to create shadows. 	<ul style="list-style-type: none"> • <i>Pattern seeking</i> – Looking at similarities between seasons. • <i>Observations over time</i> – Go for a seasons walk, observe the weather and environment throughout the half term. How does a tree change over a year?
Key vocabulary	daisy, dandelion, buttercup, seed, petal, stem, leaf, flower, roots, trunk, branches, grow, die	<p>Humans– head, shoulders, neck, arms, legs, knees, feet, hands, fingers, toes, ankles, elbows, eyes, ears, nose, mouth.</p> <p>Senses – sight, touch, smell, taste, hearing</p> <p>Features—Trunk, gills, wings, paws, claws, fangs, fur, tail, fins, shell</p> <p>Life cycle – caterpillar, chrysalis, butterfly</p> <p>Health – teeth, toothbrush, toothpaste, wash, soap, water</p>	<p>Materials – rock, wood, metal, plastic, glass, paper, fabric</p> <p>Properties – hard, soft, rough, smooth, stretchy.</p> <p>float / sink</p> <p>light / shadow</p> <p>Forces – Push, pull, stretch, bend</p>	autumn, winter, spring, summer, weather, rain, snow, sunny, windy, cloudy, stormy, cold, icy, warm, hot, dry, wet, season

Key knowledge overview – Year 1

Year group	1	1	1	1
Area	Plants	Animals including humans	Materials	Seasons
Key knowledge	<ul style="list-style-type: none"> I can name common plants – tulip, daisy, dandelion, rose, buttercup. I know that plants can grow from seeds or bulbs. I can name and label the parts of a plant – petal, stem, leaf, bulb / seed, flower and roots. I know that some plants are flowering plants and some are not. I know that we can eat many plants, and can name some. I know that weeds are wild plants that grow in places people don't want them to. I know that a wild plant grows where the seeds land. It doesn't need to be planted or cared for. I know that plants need light and water to grow and survive. I can name and label the trunk, branches, roots and leaves of a tree. I know that some trees keep their leaves all year round. These trees are called evergreen. Other trees lose their leaves in the autumn. These are called deciduous. 	<ul style="list-style-type: none"> I can identify the five senses and the associated body part. I can name and locate my head, shoulders, neck, arms, legs, knees, feet, hands, ankles, elbows, waist and hips. I can describe some simple features of animals e.g. birds have wings, fish have fins and gills. I can classify animals into those that are fish, reptiles, mammals, birds and amphibians, and can explain how I know. I know that a herbivore only eats plants, a carnivore only eats animals and an omnivore eats both plants and animals. I know that most humans are omnivores. 	<ul style="list-style-type: none"> I can talk about which material(s) common objects are made from. I can identify materials – wood, glass, plastic, metal, fabric, rock, paper. I know that objects can be made from more than one material. I can describe some materials using my senses. I can identify some simple properties – hard, rough, smooth, soft, stretchy, shiny, dull, strong, flexible, strong. 	<ul style="list-style-type: none"> I can explain some of the characteristics of the four seasons – weather, daylight, plant life, animals. I know that the weather can change from day to day and hour to hour. I know that there are typical types of weather patterns for the four seasons. I can talk about the temperature and weather outside today. I know that the amount of daylight changes with the seasons.
Investigation	<ul style="list-style-type: none"> <i>Observation over time</i> – Planting different varieties, looking after them and keeping records of growth through pictures and notes. How do trees change through the seasons? <i>Identifying and classifying</i> – Plants in different environments. Naming, grouping and sorting plants, trees and types of leaves. <i>Research</i> – Which trees grow in our local area? 	<ul style="list-style-type: none"> <i>Identifying and classifying</i> - Grouping animals into appropriate categories based on diet and type. <i>Research</i> – Research an animal and create a fact file. 	<ul style="list-style-type: none"> <i>Identifying and classifying</i> – Sorting objects in the classroom into groups according to materials they are made from. <i>Fair testing</i> – What is the strongest material to use to make a bridge over a moat? <i>Fair testing</i> – Which materials are the most flexible? 	<ul style="list-style-type: none"> <i>Pattern seeking</i> – Looking at similarities between seasons. <i>Observations over time</i> – Go for a seasons walk, observe the weather and environment throughout the half term. How does a tree change over a year?

<p>Previous knowledge</p>	<p>In EYFS children have observed and explored the world around them by:</p> <ul style="list-style-type: none"> - planting seeds and bulbs and watching them grow; - experimenting with water and ice and different containers; - collecting natural materials linked to the seasons; - noticing how we change as we grow up 			
<p>Key vocabulary</p>	<p>tulip, daisy, dandelion, rose, buttercup, seed, petal, stem, leaf, bulb, flower, roots, trunk, branches, deciduous, evergreen, weed</p>	<p>Humans– head, shoulders, neck, arms, legs, knees, feet, hands, ankles, elbows, waist, hips. Senses – sight, touch, smell, taste, hearing Classification—Fish, amphibians, reptiles, birds, mammals Features—Trunk, gills, wings, paws, claws, fangs, fur, tail, fins, shell Diet - carnivore, herbivore, omnivore, meat (animals)</p>	<p>Materials – rock, wood, metal, plastic, glass, paper, fabric Properties – hard, soft, smooth, rough, strong, waterproof, flexible</p>	<p>autumn, winter, spring, summer, weather, rain, drizzle, hail, snow, sunny, windy, cloudy, stormy, cold, warm, hot, dry, wet, season</p>

Key knowledge overview – Year 2

Year group	2	2	2	2
Area	Plants	Animals including humans	Uses of everyday materials	Habitats
Key knowledge	<ul style="list-style-type: none"> • I know that plants grow from seeds or bulbs. • I know that flowers have petals that are usually brightly coloured to attract wildlife. • I know that flowers make more seeds to enable more to grow. • I can label the life cycle of a flowering plant. • I know can explain germination. • I can talk about what happens to the seeds made by a flower. • I know that the stem carries water and nutrients around the plant. • I know that the leaves help to make food for the plant. • I know that plants need light, air, water, nutrients and sunlight to grow and can talk about what might happen if they didn't get these things. • I know that flowering plants do not flower all year round. • I know that the roots collect water and nutrients from the soil. 	<ul style="list-style-type: none"> • I can talk about how I know if something is alive, dead or non-living. • I know that humans need water, food and air to survive. They also need shelter, a good diet, exercise and good hygiene to stay healthy. • I can distinguish between things that I need and things that I want. • I can talk about why exercise is important and what it does to our bodies. • I can explain why a balanced diet is important. • I can name healthy and unhealthy foods. • I understand what good hygiene means, and can talk about hand washing, taking bath or showers, brushing my teeth, wearing clean clothes and protecting others from my coughs and sneezes. • I can put together and explain a simple food chain using the words predator and prey. • I can talk about the human life cycle, including the words baby, child, teenager, adult and elderly. • I can talk about how we change as we grow. • I can put together, label and describe the life cycle of a chick, butterfly and frog. • I can match animals with their offspring. 	<ul style="list-style-type: none"> • I know that some materials can be changed by physical force (twisting, bending, stretching and squashing). • I know that materials can be used for more than one thing e.g. metal can be used for coins, cars, table legs. I can begin to suggest why. • I know that different materials can be used for the same thing. E.g. a wooden spoon, a plastic spoon. I can suggest when a particular type is the most suitable. • I can describe properties of materials - hard, rough, smooth, soft, stretchy, shiny, dull, strong, flexible, strong, transparent, translucent, opaque, waterproof, absorbent. • I can suggest why different materials have different uses, based on their properties. 	<ul style="list-style-type: none"> • I know that a habitat is a place where a plant or animal lives. • I know that a habitat provides plants / animals with food, water and shelter. • I can identify different types of habitat around the world – desert, polar, woodland, ocean, rainforest. • I can explain how animals have adapted to suit their environments. • I know that a microhabitat is a small habitat within a larger habitat. • I can identify microhabitats within the school grounds. • I know that because resources like water and food may be limited, plants and animals often compete with each other for food and water. • I know that people are causing harm to many habitats.

Investigation	<ul style="list-style-type: none"> • <i>Observation over time</i> – Planting different varieties, looking after them and keeping records of growth through pictures and notes. • <i>Fair testing</i> – The effects of light on plant growth. • <i>Research</i> – How does a cactus survive in the desert? 	<ul style="list-style-type: none"> • <i>Fair testing</i> – Investigating the effects of good / poor hygiene (hand washing). • <i>Observations over time</i> – Observing the life cycle of chicks and butterflies. • <i>Identifying and classifying</i> – Alive / dead / non-living. 	<ul style="list-style-type: none"> • <i>Identifying and classifying</i> – Sorting materials according to their properties. • <i>Fair testing</i> – Investigating the best materials to use for different purposes (material for a Davy lamp / the best material to soak up liquid). 	<ul style="list-style-type: none"> • <i>Research</i> – Researching different habitats around the world.
Previous knowledge	<p>In Year 1, children have begun to explore these topics by:</p> <ul style="list-style-type: none"> - Materials – identifying and classifying based on type of material. Children begun to discuss basic properties of materials. - Animals – classifying animals according to type and diet. - Plants – identifying parts of plants and trees, naming common plants and trees. Children observed plant growth. 			
Key vocabulary	<p>Naming and classifying – tulip, daisy, dandelion, rose, buttercup, seed, petal, stem, leaf, bulb, flower, roots, trunk, branches, deciduous, evergreen</p> <p>Plant growth - life cycle, germination, anther, pollination, nutrients</p>	<p>Living, dead, non-living</p> <p>Hygiene, exercise, diet, health</p> <p>Food chain, predator, prey</p> <p>Life cycle, offspring, egg, caterpillar, chrysalis, butterfly, frogspawn, tadpole, frog</p>	<p>Materials – brick, wood, metal, plastic, glass, paper, leather, rock</p> <p>Properties – hard, soft, smooth, rough, strong, transparent, translucent, opaque, waterproof, flexible, absorbent</p>	<p>Habitat, micro-habitat, adaptations, desert, polar, woodland, ocean, rainforest, deforestation, ice caps, pollution</p>