

# Science Long Term Plan



Science at Foundation Stage is covered in the 'Understanding the World' area of the EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.

## What Science in Nursery looks like:

### Communication and Language

\*Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"

### Personal, Social and Emotional Development

\*Make healthy choices about food, drink, activity and tooth brushing.

### Understanding the World

- \*Use all their senses in hands-on exploration of natural materials.
- \*Explore collections of natural materials with similar and/or different properties.
- \*Talk about what they see, using a wide vocabulary.
- \*Begin to make sense of their own life-story and family's history.
- \*Explore how things work.
- \*Plant seeds and care for growing plants.
- \*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.
- \*Explore and talk about different forces they can feel (Floating and sinking).
- \*Talk about the differences between materials and changes they notice.

## What Science looks like in Reception:

### Communication and Language

- \*Learn new vocabulary.
- \*Ask questions to find out more and to check what has been said to them.
- \*Articulate their ideas and thoughts in well-formed sentences.
- \*Describe events in some detail.
- \*Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.
- \*Use new vocabulary in different contexts.

### Personal, Social and Emotional Development

- \*Know and talk about the different factors that support their overall health and wellbeing:
  - regular physical activity
  - healthy eating
  - tooth brushing
  - sensible amounts of 'screen time'
  - having a good sleep routine - being a safe pedestrian

### Understanding the World

- \*Explore the natural world around them. (Minibeasts- life cycles, Floating and sinking, Waterproof and non-waterproof materials)
- \*Describe what they see, hear and feel while they are outside. (Planting and Growing)
- \*Recognise some environments that are different to the one in which they live.
- \*Understand the effect of changing seasons on the natural world around them.

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Science in Key Stage One and Two is generally taught in half termly units of work and each unit of work has identified areas of scientific enquiry to be developed. On our Subject Long Term Plan, learning is presented in a consistent manner as detailed below:

## Summer One

Term Coverage

### Plants

Programme of Study focus

*Identify and name a variety of common plants and trees.*

*Identify and describe the basic structure of a flowering plant and tree.*

National Curriculum Focus

**Where does food come from?**

**Which part of the plant do we eat?**

**How does a tree grow and are all trees the same?**

**What do trees do for the planet and its inhabitants?**

**What is the role of a flower, can you name different flowers?**

Unit Enquiry Question(s)

Science in  
Key Stage One  
and  
Key Stage Two

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	Autumn Term	Spring Term	Summer Term
Year One	<p><u>Autumn One</u></p> <p><b>Animals Including Humans (Human Focus)</b> <i>Identify, name, draw and label the basic parts of the human body and associate body parts with each sense.</i></p> <p>Can you name the parts of your body and what you use them for? What are the five smells and how do they help us?</p> <p><u>Autumn Two</u></p> <p><b>Animals Including Humans (Animal Focus)</b> <i>Identify and name a variety of common animals. Describe and compare the structure of a variety of common animals. Identify and name a variety of carnivores, herbivores and omnivores</i></p> <p>Can you name different animals? How can you group these animals (farm, pet, wild)? What is an omnivore, carnivore and herbivore? How do we know if an animal is an omnivore, carnivore and herbivore?</p>	<p><b>Everyday Materials</b> <i>Know the difference between an object and its material and name a variety of materials. Describe simple physical properties of a variety of everyday materials. Compare and group everyday materials based on simple physical properties.</i></p> <p>What is the object and the material is it made from? Can you group these objects into their materials? What do you think the most common material is used today? Why do you think these objects are from this material? What would a good material be to make a kite and why?</p>	<p><u>Summer One</u></p> <p><b>Plants</b> <i>Identify and name a variety of common plants and trees. Identify and describe the basic structure of a flowering plant and tree.</i></p> <p>Where does food come from? Which part of the plant do we eat? How does a tree grow and are all trees the same? What do trees do for the planet and its inhabitants? What is the role of a flower, can you name different flowers?</p> <p><u>Summer Two</u></p> <p><b>Seasonal Changes</b> <i>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</i></p> <p>How do we know which season we are in?</p>
	Year Two	<p><b>Uses of Everyday Materials</b> <i>Suitability of everyday materials for particular uses. Find out how the shapes of solid objects can be changed.</i></p> <p>What materials should I use to make a (spoon, boat, coat)? Why can a spoon be made from wood, metal or plastic but not paper or card?</p>	<p><u>Spring One</u></p> <p><b>Animals Including Humans</b> <i>Understand animals have offspring which grow into adults. Basic needs of animals for survival (water, food and air). Importance of exercise, types of food and hygiene for humans.</i></p> <p>How can I group living things? Why do animals eat food?</p> <p><u>Spring Two</u></p> <p><b>Plants</b> <i>Observe and describe how seeds and bulbs grow into mature plants. - Importance of water, light and temperature for plants to grow and stay healthy.</i></p> <p>How does a seed change once it is 'planted'? What makes a healthy plant?</p>

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<h2>Year Three</h2>	<p><b>Rocks</b> Compare and group different kinds of rocks. Describe how fossils are formed. Recognise that soils are made from rocks and organic matter.</p> <p><b>How are fossils formed?</b> <b>Are all rocks the same?</b></p> <p><b>How is soil formed?</b> <b>Is all soil the same?</b></p>	<p><u>Spring One</u></p> <p><b>Forces and Magnets</b> Compare how things move on different surfaces. Observe how magnets attract and repel each other and materials. Describe poles in terms of magnets. Make predictions.</p> <p><b>What happens when you place two magnets close together?</b> <b>How might a ----- travel on a ---- surface?</b></p> <p><u>Spring Two</u></p> <p><b>Animals Including Humans</b> Identify that humans and some animals have skeletons and muscles for support, protection and movement</p> <p><b>Why are muscles and skeletons important structures?</b> <b>How do animals and humans get their energy?</b></p>	<p><u>Summer One</u></p> <p><b>Plants</b> Explore the requirements for life and growth in plants and investigate how water is transported. Identify and describe the functions of different parts of a flowering plant. Explore the part that flowers play in the life cycle of flowering plants.</p> <p><b>How is water transported in plants?</b> <b>Why is the flower an important part of a plant?</b></p> <p><u>Summer Two</u></p> <p><b>Light</b> Recognise that light is needed to see things. Understand that light is reflected from surfaces. Know that shadows form when a light source is blocked and find patterns in how shadows can change. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p><b>How are shadows formed?</b> <b>What does the term reflected mean?</b></p>
	<p><b>States of Matter</b> Compare and group materials together, according to their state. Observe changes of state due to heating and cooling. Understand the impact of temperature in the water cycle.</p> <p><b>What is the difference between a solid, liquid or gas?</b> <b>What happens to a material when you heat/ cool it?</b></p> <p><b>What is the water cycle?</b></p>	<p><u>Spring One</u></p> <p><b>Animals Including Humans</b> 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. Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p><b>What happens to food once it is placed into our mouth?</b> <b>What is the most important part of food chain, the producer, predator or prey?</b> <b>Are all teeth the same?</b></p> <p><u>Spring Two</u></p> <p><b>Sound</b> Identify how sounds are made and how they can be changed (pitch and volume). Understand how sound travels. Find patterns in changes in sounds.</p> <p><b>How can a sound be made louder or quieter?</b> <b>How do we hear?</b></p>	<p><u>Summer One</u></p> <p><b>Living Things and Their Habitats</b> Understand how to group living things and identify them using classification keys. Recognise how changes in the environment affect living things.</p> <p><b>What living things are in our environment, how can you group them?</b> <b>What factors can change our environment, how might those changes affect living things?</b></p> <p><u>Summer Two</u></p> <p><b>Electricity</b> Identify appliances that run on electricity. Construct simple series electrical circuits, identifying and naming parts. Identify if the circuit would allow electricity to flow. Understand and recognise common conductors and insulators.</p> <p><b>What parts have been included in this circuit?</b> <b>What is the function of a switch, what will happen to the parts in the circuit if the switch is open/closed?</b> <b>What makes a good conductor/insulator, can you find one?</b></p>

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<b>Year Five</b>	<p><u>Autumn One</u></p> <p><b>Earth and Space</b></p> <p><i>Describe the Sun, Earth and Moon as approximately spherical bodies. Describe the movement of the Moon relative to the Earth. Describe the movement of Earth and other planets relative to the Sun. Explain day and night.</i></p> <p><b>Does life exist beyond Earth? Will holidays in Space happen in the future?</b></p> <p><u>Autumn Two</u></p> <p><b>Forces</b></p> <p><i>Explain the force of gravity and impact on a falling object. Identify effects of air resistance, water resistance and friction. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</i></p> <p><b>How do forces affect sports?</b></p>	<p><b>Properties and Changing Materials</b></p> <p><i>Compare and group everyday materials on the basis of their properties, ( hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Understand that some materials are soluble and 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. Demonstrate reversible changes and explain that some changes are irreversible.</i></p> <p><b>How will the materials of the future change the products?</b></p>	<p><u>Summer One</u></p> <p><b>Animals Including Humans</b></p> <p><i>Describe the changes as humans develop to old age.</i></p> <p><b>Why are people living longer?</b></p> <p><u>Summer Two</u></p> <p><b>Living Things and Their Habitats</b></p> <p><i>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.</i></p> <p><b>What would happen if climate change caused a break in a food chain?</b></p>
	<b>Year Six</b>	<p><b>Light</b></p> <p><i>Recognise that light appears to travel in straight lines. Use this idea to explain that objects are seen because they give out or reflect light into the eye and that shadows have the same shapes as objects that cast them. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</i></p> <p><b>Is there light everywhere all the time?</b></p>	<p><u>Spring One</u></p> <p><b>Electricity</b></p> <p><i>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. Discuss this in terms of voltage and cells. Use recognised symbols when representing a simple circuit in a diagram.</i></p> <p><b>What is the future of Electricity?</b></p> <p><u>Spring Two</u></p> <p><b>Animals Including Humans</b></p> <p><i>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.</i></p> <p><b>What can you do now to be a healthy adult?</b></p>