

Science Topic and Skills Progression Overview

Year R					
Curriculum Requirements	Working Scientifically - use observational skills and explore the natural world around them and know some similarities and differences between what they observe and contrasting environments. Begin to understand important processes and changes in the natural world.				
Skills and Topics	<p>The Science curriculum falls under the specific area of Understanding of the World. The revised Statutory framework for the early years foundation stage (2021) sets out Science in its own Early Learning Goal, 'The Natural World', where children will cover the key aspects of the subject using skills of observation, exploration, discussion, comparison and application of knowledge. These skills will be taught through the use of first-hand experiences, fiction and non-fiction texts.</p> <p>Learning will be based on exploring the natural world and making observations. Children will be taught some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. They will be taught about some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>				
Year 1					
Year 1	Autumn <u>The Enchanted Forest</u> Everyday Materials	Spring <u>Around the World</u> Animals		Summer <u>Plants</u>	Longitudinal Study (Throughout the Year) Seasonal Changes
Learning Journey	Describing and Changing Materials	How do animals survive?	What is a habitat?	How do plants grow?	Do seasons affect habitats?
Substantive Knowledge	<p>There are many different materials that have different observable properties. Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (inc. glass). The properties of a material determine whether they are suitable for a purpose.</p>	<p><u>Feeding for survival</u> Animals are groups of organisms that consume food to survive. Food provides energy and the building blocks of growth. There are many different groups of animals including fish, amphibians, reptiles, birds and mammals. They have different structures, and they eat different types of food. Some eat other animals (carnivores), and others eat vegetables (herbivores), and some like to eat both plants and meat(omnivores).</p> <p><u>Moving for survival</u></p>	<p><u>Adapted to survive</u> There is variation in all living things. Animals and plants live in a variety of places called habitats. Animals and plants have adapted to survive in different habitats.</p> <p><u>Plant adaptations for survival</u> Plants have specific adaptations for survival. To survive</p>	<p><u>Where do plants come from?</u> A seed contains a miniature plant that can develop into a fully grown plant. A bulb has underground vertical shoots which already has modified leaves. Seeds and bubs need water to grow but most do not need light(germination). Seeds and bulbs have food stores inside them to help the plant start to grow.</p> <p><u>Plant Survival</u> To survive plants need to get water, light, and avoid being eaten.</p> <p><u>How plants get what they need to survive</u> A seed produces roots to allow water to get into the plant. A seed produces shoots to produce leaves to collect the sunlight. A</p>	<p><u>Surviving the changing seasons</u> There are four seasons, spring, summer, autumn and winter. Animals and plants have adapted ways of surviving the changing seasons. These include hibernating, storing food, fattening up, migration, loss of</p>

Disciplinary Knowledge	<p>Animals must move to get their food. They will move in different ways to get their food. Animals that eat other animals are called predators. Animals that eat other animals are called prey. Animal feeding relationships can be illustrated in a food chain.</p> <p><u>Sensing for survival</u> Animals have senses to help them survive. Animals have developed a range of ways to find prey or to avoid being eaten.</p>	<p>they need to get water, light and avoid being eaten.</p>	<p>basic plant structure can include leavers, flowers(blossom), petals, fruit, roots, seed, trunk, branches, stem.</p>	<p>leaves. Trees can be evergreen or deciduous.</p>
	<p>Disciplinary Knowledge Instructed/Undertaken/Revisited (Working Scientifically)</p> <ul style="list-style-type: none"> • Observing closely • Using simple equipment • Gathering and recording data to help in answering questions • Identifying and classifying • Using secondary sources • Asking simple questions and recognising that they can be answered in different ways • Using their observations and ideas to suggest answers to questions 			

Year 2

	Autumn <u>"Sizzle! Crack! Bang!"</u>	Spring <u>Adventures Far and Wide</u>		Summer <u>People, Places and Plants</u>	Longitudinal Study (Throughout the Year)
	Uses of everyday materials	Forces	Animals	<u>Plants</u>	
Learning Journey	Why do we choose materials to do certain jobs?	Why and how do objects move?	What is the life cycle of an animal?	How are new plants made?	Habitats and how the seasons affect them (pond dipping)
Substantive Knowledge	<p><u>How materials can change</u> Materials can be changed by physical force (twisting, bending, squashing and stretching).</p> <p>In this unit children will learn why we</p>	<p><u>How things move</u> Objects can move (be in motion) in various ways - roll, slide and bounce.</p> <p><u>Forces change how</u></p>	<p><u>Animal timelines</u> Things that are living, move, feed, grow, reproduce and use their senses. Animals grow until they reach maturity and then</p>	<p><u>What flowers are for</u> All flowering plants make seeds (reproduction) that can grow (germinate) into new plants. Plants need water, light and a suitable temperature to grow and stay healthy.</p>	How does the number and variety of animals change over the year in the pond?

	<p>choose certain materials to do certain jobs. They will plan how to test materials in order to answer questions.</p>	<p><u>objects move</u> The pushing or pulling of an object can affect its motion. Pushing or pulling can do three things, slow down, speed up or change the direction of an object. <u>Making forces bigger</u> The larger the push/pull the bigger the effect on motion. <u>Forces can change the shape of objects</u> Pushing and pulling objects can change their shape.</p>	<p>they don't grow any larger. Animals reproduce when they reach maturity(adulthood). All animals eventually die. Different animals live to different ages. Different animals reach different sizes before they are able to reproduce. Different animals reproduce at different ages. Animals, including humans, have offspring which grow into adults. Exercise, eating the right amounts of different types of foods and hygiene are important to maintain good health and wellbeing. <u>How animals get their food</u> Habitats are places where plants and animals live (from Year 1). Animals live in habitats in which they are suited. Different kinds of animals and plants depend on each other within habitat. Animals get their food from plants and other animals. This can be shown in a food chain. A food chain begins with a producer. This is often a green plant because plants can make their own food. A living thing that eats other plants is</p>	<p><u>What happens after a plant has produced seeds</u> Some plants die after it has produced its seed and sometimes the plant lives for many generations producing seeds each year.</p>	
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called a **consumer**.

Disciplinary Knowledge Instructed/Undertaken/Revisited (Working Scientifically)

- Gathering and recording of data to help in answering questions - What have we found out? How can we record our findings?
- Performing simple tests - identifying the independent variables, scaffolding for how to measure dependent variables
- Observing closely using simple equipment - suggesting what equipment they should use to support their observations, taking photographs/labelling diagrams,
- Using their observations and ideas to suggest answers to questions
- Asking simple questions and recognising that they can be answered in different ways - identifying the change and measure, planning an enquiry identifying the change and measure,
- Identifying and classifying - looking for similarities and differences to classify

**Disciplinary
Knowledge**