



# Year 2: Science



## Block 1 – Biology Animals including humans - Needs for Survival

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p>In Year 2, pupils are taught to find out about and describe the basic needs of animals, including humans, for survival (water, food, air). They learn to recognise that animals, including humans, have offspring and to describe the importance of exercise, eating the right amounts of types of foods and of hygiene for humans.</p>	<p>Pupils will learn:</p> <ul style="list-style-type: none"> <li>• <b>Animals, including humans, have offspring which grow into adults.</b></li> <li>• <b>The basic needs of animals, including humans, for survival include water, food, and air.</b></li> <li>• <b>To remain healthy it is important for humans to exercise, eat the right amounts of different types of food, and have good hygiene.</b> <ul style="list-style-type: none"> <li>- Exercise makes muscles (including the heart) and bones stronger.</li> <li>- Food provides nutrients which are essential for survival.</li> <li>- A balanced diet contains the right amount of all the food groups.</li> <li>- Hygiene is about keeping yourself and your environment clean in order to stay healthy.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• DC1: Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>• DC4: Make careful observations.</li> <li>• DC5: Record findings using simple scientific language, drawings, and labelled diagrams.</li> <li>• DC7: Use results to draw simple conclusions and make predictions.</li> </ul>

### Sequence:

In Year 1, pupils gained a strong foundational knowledge of what all living things do. They were introduced to the different types of vertebrate animals (those with a backbone) and learnt about common animals including fish, amphibians, reptiles, birds, and mammals. During classification and identification work, pupils observed similarities and differences between species. From this learning, pupils already understand that humans are mammals and belong to the animal kingdom.

## Block 2 – Chemistry

### Use of Everyday Materials

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
In Year 2, pupils identify and compare the suitability of a variety of everyday materials. They also find out how the shapes of solid objects, made from some materials, can be changed.	<p>Pupils will learn:</p> <ul style="list-style-type: none"> <li>● <b>Everyday materials include wood, metal, plastic, glass, brick, rock, paper, and cardboard.</b> <ul style="list-style-type: none"> <li>- Materials are what objects are made of.</li> <li>- If an object or material can be recycled, it can be reused to make something new.</li> <li>- Scientists and inventors discover new materials which change the way humans live.</li> </ul> </li> <li>● <b>The material chosen to make an object or device is based on the suitability of its properties.</b></li> <li>● <b>The shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.</b> <ul style="list-style-type: none"> <li>- If a flexible object is squashed, bent, twisted, or stretched it can change shape.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● DC1: Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>● DC4: Make careful observations.</li> <li>● DC5: Record findings using simple scientific language, drawings, and labelled diagrams.</li> <li>● DC7: Report on findings from enquiries, including oral and written explanations.</li> </ul>

#### Sequence:

This unit is designed to expand pupils' knowledge of materials and what they are used for. It builds on what pupils learnt in Year 1. The first session is a revision session of the work completed in Year 1, designed to remind pupils of the names of common materials and their properties. This unit is deliberately placed alongside the History unit 'The Great Fire of London' so that links can be made between the two subjects

## Block 3 and 4 – Biology

### Living Things and their Habitats

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
In Year 2, pupils are taught the difference between things that are living, dead and things that have never been alive. They are also taught that most organisms live within habitats, that the organisms within an environment are suited to life there and that they depend on each other. Pupils are then able to construct simple food chains in addition to identifying and classifying organisms within habitats.	<p>Pupils will learn:</p> <ul style="list-style-type: none"> <li>● <b>Things can be living, dead, or never been alive.</b> <ul style="list-style-type: none"> <li>- Plants and animals are living things.</li> <li>- The life processes carried out by all living things include movement, reproduction, sensitivity, growth, and nutrition.</li> </ul> </li> <li>● <b>Plants and animals live in a variety of habitats, including microhabitats.</b> <ul style="list-style-type: none"> <li>- A habitat is a place where a living thing lives.</li> <li>- Minibeasts live in microhabitats, like a rotten log.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● DC1: Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>● DC4: Make careful observations.</li> <li>● DC5: Record findings using simple scientific language, drawings, and labelled diagrams.</li> <li>● DC7: Report on findings from enquiries, including oral and written explanations.</li> <li>● DC8: Use models to represent a scientific concept or process.</li> </ul>

	<ul style="list-style-type: none"> <li>- Different plants and animals may be seen in a habitat in different seasons.</li> <li>• <b>Most living things live in habitats to which they are suited.</b> <ul style="list-style-type: none"> <li>- An earthworm’s habitat is dark, damp, and normally underground.</li> </ul> </li> <li>• <b>Habitats provide for the basic needs of different kinds of animals and plants.</b> <ul style="list-style-type: none"> <li>- Habitats meet the needs of different animals in different ways.</li> </ul> </li> <li>• <b>The living things in a habitat depend on each other for survival.</b></li> <li>• <b>Animals obtain their food from plants and other animals. This can be shown using a simple food chain.</b> <ul style="list-style-type: none"> <li>- A food chain shows what an animal eats in its habitat.</li> <li>- The animals in a food chain all begin by depending on plants.</li> </ul> </li> </ul>	
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Sequence:

This unit is designed to expand pupils’ knowledge of living things. In Year 1, pupils discovered the different types of vertebrates: fish, mammals, birds, reptiles and amphibians and that animals can be classified as carnivores, herbivores or omnivores. They also investigated what animals need to survive. This unit builds upon that knowledge with habitats and food chains.

### Block 5 – Biology Plants – needs for survival

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p>In Year 2, pupils are taught to observe and describe how seeds and bulbs mature into plants. Pupils also find out and describe how plants need water, light and a suitable temperature to stay healthy</p>	<p>Pupils will learn:</p> <ul style="list-style-type: none"> <li>• <b>Seeds and bulbs grow into mature plants.</b> <ul style="list-style-type: none"> <li>- Most plants grow from seeds.</li> <li>- Inside a seed is an embryo which, under the right conditions, will sprout and grow into a plant.</li> <li>- Germination is when the embryo inside the seed sprouts and starts to grow into a plant.</li> </ul> </li> <li>• <b>Plants need water, light, and a suitable temperature to grow and stay healthy.</b> <ul style="list-style-type: none"> <li>- Plants need light, water, a suitable temperature, and air to survive.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• DC1: Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>• DC2: Plan simple scientific enquiries.</li> <li>• DC3: Use a range of equipment.</li> <li>• DC4: Make careful observations.</li> <li>• DC5: Record findings using simple scientific language, drawings, and labelled diagrams.</li> <li>• DC7: Report on findings from enquiries, including oral and written explanations. Use results to draw simple conclusions and make predictions.</li> </ul>

	- The five stages in a plant life cycle are: seed, germination, growth, reproduction, and dispersal.	
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Sequence:

Pupils in Year 1 were introduced to common wild and garden plants, including deciduous and evergreen trees. They also identified and described the basic structure of a variety of common flowering plants, including trees. Earlier in Year 2, pupils added to their knowledge of plants by looking at plants within different habitats, the role plants play in food chains and why trees are important.

**Block 6 – Biology**  
**Living Things and their Habitats**  
**Conservation - Protecting the Environment**

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p>The National Curriculum does not require pupils to explore the human impact on the environment until Year 4 but within our Science curriculum, pupils will first be introduced to this concept here in Year 2. This ensures that pupils have the necessary foundational knowledge but also that pupils are considering the environment and their role in protecting it.</p>	<p>Pupils will learn:</p> <ul style="list-style-type: none"> <li>● <b>Humans and their activities pose dangers to wildlife, through housing, traffic, waste, and pollution.</b></li> <li>● <b>Where possible materials should be recycled to reduce landfill and pollution.</b> <ul style="list-style-type: none"> <li>- Recycling of materials reduces waste, reducing landfill and pollution.</li> </ul> </li> <li>● <b>To ensure a sustainable supply of water and energy, these resources must be used efficiently.</b> <ul style="list-style-type: none"> <li>- Water must be used efficiently and not wasted to make sure there is enough for everyone.</li> <li>- Most electricity is made from fossil fuels, these are non-renewable.</li> <li>- Using energy and water efficiently, recycling and reusing materials, and looking after trees are all ways of protecting the environment.</li> </ul> </li> <li>● <b>Trees are a source of food, fuel, oxygen, and timber.</b> <ul style="list-style-type: none"> <li>- Trees are an important source of food, fuel, and timber as well as providing oxygen and a habitat for many animals.</li> </ul> </li> <li>● <b>Trees provide a habitat for many animals.</b></li> </ul>	<ul style="list-style-type: none"> <li>● DC1: Ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>● DC4: Make careful observations.</li> <li>● DC5: Record findings using simple scientific language, drawings, and labelled diagrams.</li> <li>● DC6: Present data as a bar chart.</li> <li>● DC7: Report on findings from enquiries, including oral and written explanations.</li> </ul>

**Sequence:**

This unit is designed to expand pupils' subject knowledge of habitats through the lens of how and why habitats should be protected. The content is designed to support pupils in understanding why the environment is important and what they can do to make a difference on a local scale. This unit is placed after the science 'Habitats' unit so that links can be made.