

Year 2 Science Medium Term Plan

<p>Year 2</p>	<p><u>Animals Including Humans</u></p> <p>This unit is the second of six science units where pupils study animals, including humans, as part of the discipline of biology - the study of living organisms. Pupils have a secure knowledge of common animals, their babies and their habitats. Pupils can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Pupils can identify, name, draw and label the basic parts of the human body. In Year 2, pupils study life cycles and learn that animals, including humans, have offspring which grow into adults. New learning includes the basic needs of animals, including humans, for survival and the importance of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>This unit is the precursor to work studied in lower key stage 2 where pupils learn to classify and group animals and learn about skeletons, vital organs and the digestive system. In Upper key stage 2 pupils continue their learning looking in more depth at food chains, life cycles, vital organs and the circulatory systems.</p>	
<p>National Curriculum (End of Unit Outcomes)</p>	<p>Sequence of Learning (small steps)</p>	<p>Key skills – Working Scientifically</p>
<p>Notice that animals, including humans, have offspring which grow into adults</p>	<ul style="list-style-type: none"> -To describe the life stages of a human using terms such as offspring, baby, child and adult. -To consider the capabilities of different stages of life in a human. -To identify the parents and offspring of animals where they look similar and moving onto where they look dissimilar (e.g. frogs or insects) WS 4 -To describe the life stages of an animal (with focus on the growth of a frog and chicken.) <p><u>The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs.</u></p>	<p><u>Researching</u> Research adult animals and their young. WS 6</p> <p><u>Observing over time</u> Observe a life cycle (e.g. caterpillars, frogs, chicks, farm animals). Observe how their body changes during/after exercise with focus on the effects on the heart (raised pulse). WS 2</p>
<p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p>	<ul style="list-style-type: none"> -To know that all humans have the basic needs of feeding, breathing and drinking to survive. -To understand the signals experienced to indicate hunger and thirst. -To explain the different types and amounts of food eaten at different stages of development. -To understand that animals also have basic needs for water, food and air. 	

<p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<ul style="list-style-type: none"> -To explain the importance of exercise and the consequences of not exercising on our health. -To know that exercise has an effect on our bodies (raised heart rate, raised temperature etc). -To know that our bodies need exercise to stay strong and fit. --To know the basic food groups: fruit and vegetables, carbohydrates, protein, dairy, fat and sugary foods. -To identify and classify types of food based on how healthy they are. and explain how a balanced diet impacts human health. WS 4 -To know that fatty and sugary foods should be eaten rarely and in small amounts. -To learn about hygiene with links to food preparation and understand what I can do before touching or eating food. -To know that germs can make people unwell. -To understand that hygiene helps to prevent infection which can result in disease and illness. 	<p>Identifying, Classifying and Grouping Based on the children's own criteria: classify food items WS 4</p> <p>Comparative and Fair Testing Ask simple questions about exercise and its effects</p> <p>Perform simple tests to answer questions about exercise and its effects on our bodies. WS 3</p> <p>Use observations of the effects to answer questions WS 5 (no need to use units of measure at this stage, just observations)</p> <p>Observation Using dried herbs and hand gel/hand cream, model how easily germs can be spread from one hand to another and to different items. Then demonstrate how to wash hands correctly. WS3</p>
<p>Vocabulary</p>	<p>Reproduction and growth in animals: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep.</p> <p>Reproduction and growth in humans: baby, toddler, child, teenager and adult., Offspring</p> <p>Basic needs, water, food, air, breathing, respire, survival.</p> <p>Different types of food, dairy, fruit and, vegetables, fat/sugar (examples – meat, fish, vegetables, bread, rice, pasta etc)</p> <p>Hygiene - handwashing, bathing, teeth brushing, face washing, changing clothes, clean, wash, healthy, medicine, germs, infection, disease, illness.</p> <p><i>Children may use protein/carbohydrate etc to classify foods but do not need to know what each of these do, this will be introduced in year 3.</i></p>	
<p>Common Misconceptions</p>	<p>Some children may think:</p> <ul style="list-style-type: none"> -An animal's habitat is like its 'home' -All animals that live in the sea are fish - Respiration is breathing or breathing is respiration. 	

Key Questions

- Can you describe the life stages of a frog/chicken?
- What does 'offspring' mean?
- What do humans and animals need to survive?
- What is a healthy diet?
- Why do our bodies need exercise?
- What is a germ?
- How can we be hygienic?

<p>Y2</p>	<p><u>Habitats</u></p> <p>Prior to this unit pupils will have already started to study habitats by looking at minibeasts in FS2. In year 2 pupils will learn about the food chains of animals in varying habitats and will look at microhabitats and the animals that live there. They will also learn how to determine if something is alive, was once alive or never lived. This unit comes before work in year 4 where pupils will continue learning about habitats by grouping animals into categories.</p>	
<p>National Curriculum (End of Unit Outcomes)</p>	<p>Sequence of Learning (small steps)</p>	<p>Key skills – Working Scientifically</p>
<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p>	<p>-To understand that <u>all</u> objects are either living, dead or have never been alive.</p> <p>-I know that living things react to their surroundings, need air, feeds (consumes nutrients), grows, reproduces and gets rid of waste.</p> <p>-To know that dead things used to do these but no longer do.</p> <p>-To know that things that have never lived have never done these things.</p>	<p><u>Identifying, Classifying and Grouping</u> Children will sort and classify things according to whether they are living, dead or were never alive. WS 4</p> <p>Children will record their findings on charts. WS 6</p> <p>Ask questions about where things have been placed in the classification above. E.g. Is a deciduous tree dead in winter? Is a flame alive? WS 1</p>
<p>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</p>	<p>-To understand that a habitat is a natural environment or home of a variety of plants and animals.</p> <p>-To know that a habitat provides the basic needs of the animals and plants – shelter, food and water.</p> <p>-To look at different habitats around the world including polar, desert, ocean, woodland/forest and how their conditions are different.</p> <p>-To focus on a variety of different living things and how they are suited, including polar bears (thick fur, oily pads to prevent sticking to ice), sharks (smooth skin and streamlined shape, gills to breathe underwater) and cacti (spines and thick skin to prevent water loss, spines to protect from animals and deep roots to collect water) Camels WS 5</p>	<p><u>Observing</u> Explore and describe plants and animals in habitats and micro-habitats (under a rock, in a pond, in a meadow throughout the year.) Ws 2</p>

<p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p>	<p>-To name a variety of animals and plants for different habitats, including those from their local environment.</p> <p>-To know that within a habitat there are micro-habitats (woodland – leaf litter or bark of a tree) and that these have different conditions (light or dark, damp or dry).</p> <p>-To identify some animals that live in microhabitats such as woodlice under logs (dark and damp) and frogs in a pond (water to lay eggs).</p> <p>-To compare animals in familiar and less familiar habitats. (seashore, woodland, ocean, rainforest etc).</p> <p>-To study a variety of plants and animals within their habitats and observe how they depend on each other e.g. plants providing food for animals, shelters etc.</p>	
<p>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</p>	<p>-To understand and create a simple food chain with arrows pointing in the correct direction.</p> <p>-To create simple 3 step (secondary consumer) food chains for animals from different habitats e.g. worm – bird – cat (local) Grass – gazelle – lion (an area unlike ours) Algae – fish – seal etc (sea)</p> <p>-To understand that the arrows on a food chain means 'is eaten by'.</p> <p>-To name different food sources.</p>	<p>Researching Research what animals might eat as part of their diet to create a food chain. WS 6</p>
<p>Vocabulary</p>	<p>Living , Dead, Never living, Habitat, Microhabitat, Shelter, Food, Food Chain</p>	
<p>Common Misconception</p>	<p>Some children may think:</p> <p>-An animal's habitat is like its 'home'</p> <p>-Plants and seeds are not alive as they cannot be seen to move</p> <p>-Fire is living</p> <p>-Arrows in a food chain mean 'eats'.</p>	

Key Questions

- What is a habitat?
- Is a living/dead or has it never been alive?
- How is a polar bear suited to its habitat?
- Can you create a food chain?
- What does the arrow in a food chain mean?

<p>Y2</p>	<p><u>Uses of Everyday Materials</u></p> <p>This unit is the second of five science units where pupils study materials as part of the discipline of chemistry - the identification of the properties a substance is made from. It is also the study of forces as part of the discipline of physics – the study of the processes that shape our world and how we use it. Pupils have a secure knowledge of the properties of a variety of everyday materials. Pupils can identify, name and describe an object in terms of the material it is made from including if it is ‘man-made’ or ‘natural’. Previous learning includes comparing and grouping together everyday materials on the basis of their simple physical properties. Pupils have studied the work of John Dunlop and ‘the pneumatic tyre.’</p> <p>This year 2 unit builds on pupils’ knowledge of materials of properties as pupils identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses.</p> <p>New learning includes comparing how things move on different surfaces. This unit will help pupils understand how squashing, bending, twisting and stretching can change the shapes of some solid objects.</p> <p>This is the precursor to work studied in Year 3 rocks and soils. The knowledge acquired will help pupils in Year 4 as pupils study materials in terms of solid, liquid and gases. Year 5 pupils learn about dissolving, mixing and changes of state, and reversible and irreversible changes. Pupils also build on previous knowledge of magnetic and non-magnetic metals.</p>	
<p>National Curriculum (End of Unit Outcomes)</p>	<p>Sequence of Learning (small steps)</p>	<p>Key skills – Working Scientifically</p>
<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>	<p>-To know that materials can have useful properties for a given job (including being waterproof, strong, hard, soft, flexible, rigid, light or heavy)</p> <p>-To know that materials are chosen specifically for an object because of their suitable properties.</p> <p>-To identify examples of materials for a given object and state how these are suitable for that object e.g. a plastic water bottle is transparent to allow you to see the drink inside and waterproof to hold the drink. WS 5</p> <p>-To know how to test materials suitability for a specific job (enquiry) and perform these simple tests WS 3 and 6</p> <p>-To identify that materials may have more than one property, making them suitable for different objects e.g. metal can be used for a can, car, coin, table leg etc.</p> <p>-To identify why a material may be unsuitable for a particular object.</p> <p>-To discuss the work of people who have developed new materials such as Charles Macintosh or John McAdam.</p> <p>-To know that recycling materials is important.</p>	<p>Classifying Based on the children’s own criteria, classify materials e.g. samples of wood, metal, plastic, etc. WS 4</p> <p>Comparative/fair testing Test materials for different uses (e.g. What would be the best material for an umbrella?) WS 6</p>

<p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<p>-To know that applying forces to objects can change their shape, by squeezing, stretching, bending and twisting. WS 2</p> <p>-To understand that the ability to change the shape of a material can be due to its property or how it has been processed e.g. Aluminium cans – thickness.</p> <p>-To explore how a material can be changed and explain what is being done to it. (hands on) WS 2</p> <p>-To understand that some materials may not return to their original shape.</p>	<p>Fair testing Record findings into a simple table after testing whether the material will bend, twist or stretch. WS3 and 6</p>
<p>Vocabulary</p>	<p>Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard</p> <p>Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid</p> <p>Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</p>	
<p>Common Misconceptions</p>	<p>Some children may think:</p> <ul style="list-style-type: none"> • only fabrics are materials • only building materials are materials • only writing materials are materials • the word rock describes an object rather than a material • solid is another word for hard. 	
<p>Key Questions</p>	<ul style="list-style-type: none"> - What material is this object made from? - What properties does this material have? (glass, metal, wood, plastic) - What material would be suitable for an umbrella? Why? - Will metal/wood/plastic bend, stretch or twist? - Which material would be good for a spoon? Why? Is this the only material that would be useful? 	

<p>Y2</p>	<p>Plants This unit follows on from learning in year 1 the pupils learned about the names of common plants and trees and how to identify them by their leaves. They learn about the terms 'evergreen' and 'deciduous'. In year 2 pupils will recap common plants and trees studied in year 1 before moving onto how plants grow (including germination and pollination), what they need to grow healthily and differences between bulbs and seeds. This unit includes an investigation about growing healthy plants. This is the precursor to work studied in Year looking more at what plants need to grow healthily. They will also study water transportation and the process of the life cycle of the plant including pollination, seed formation and seed dispersal. In Year 6, pupils continue to study plants by studying plant classification for flowering and not flowering plants.</p>	
<p>National Curriculum (End of Unit Outcomes)</p>	<p>Sequence of Learning (small steps)</p>	<p>Key skills – Working Scientifically</p>
<p>Observe and describe how seeds and bulbs grow into mature plants</p>	<ul style="list-style-type: none"> - To know the names of common trees and plants from Y1 curriculum (see below) Plants - daisy, white clover, poppy, nettle, ivy, bramble, dandelion and grass and introduce new species daffodils, roses, thistle and shamrock (all UK national flowers) -To know how to use the term species to describe different plants. Trees - oak, elm, maple, silver birch, sycamore, horse chestnut, crack willow -To secure knowledge of the parts of a plant as roots, stem, flower, leaves (revision from Y1) -To know that plants grow from seeds or bulbs. Identify pictures of seeds and bulbs. -To know that seeds are sown and bulbs are planted. -To know that when a seed germinates it starts to grow. This process is called germination. As a plant grows it becomes a seedling. -To know that seeds need water, warmth and oxygen to be able to germinate. -To be aware that seeds and bulbs have a store of food inside them -To know that a shoot is a new part of a plant that grows. -To know that seedlings will continue to grow into mature plants. -To know that mature plants may have flowers which then develop into seeds, berries or fruits. -I understand that seeds can be gathered from mature plants and then planted again to start the plant life cycle again. -To understand why a circle diagram is used to understand the life cycle of a plant. 	<p>Classifying Based on the children's own criteria: classify seeds classify bulbs. WS 4</p> <p>Observing over time Plant seeds and bulbs and observe how they grow WS 2</p>

<p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>To grow plants from a seed or bulb and understand that these grow into a mature plant over time. WS 2</p> <p>-To know that plants need the following to grow and be healthy -</p> <ul style="list-style-type: none"> • Water • Air • Warmth • Light WS 1 <p>-To know that healthy plants are green and strong unhealthy plants are often pale, yellowy and weak.</p> <p>-</p> <p>-To explain how seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates.</p> <p>-To know that some plants are better suited to growing in full sun and some grow better in partial or full shade.</p> <p>-To make comparisons between plants as they grow. WS 5</p>	<p>Pattern seeking Children generate questions for investigation such as: Do big seeds germinate more quickly? Does it matter which way round you plant a bulb or seed? Which comes first, the root or the shoot? WS 1</p> <p>Research Find out when and how different seeds and bulbs need to be planted. WS 6</p> <p>Test how well different seeds would grow at different times of the year. WS 3</p>
<p>Vocabulary</p>	<p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area</p> <p>light, shade, sun, warm, cool, water, grow, healthy</p>	
<p>Common Misconceptions</p>	<p>Some children may think:</p> <ul style="list-style-type: none"> • plants are not alive as they cannot be seen to move • seeds are not alive • all plants start out as seeds • seeds and bulbs need sunlight to germinate. 	
<p>Key Questions</p>	<ul style="list-style-type: none"> - What do plants need to grow and be healthy? - What would happen if a plant didn't have water? - What do plants grow from? - Can you describe how a seed would grow into a mature plant? 	

