

Science Curriculum Overview

Nursery	Reception	Year 1	Year 2
UW - Autumn 1	UW - Autumn 1	Autumn 1	Autumn 1
<p>Children will be learning to:</p> <ul style="list-style-type: none"> • explore and respond to different natural phenomena in their setting. • use all their senses in hands-on exploration of natural materials. 	<p>Children will be learning:</p> <ul style="list-style-type: none"> • describe what they see, hear and feel whilst outside • <i>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 (ELG)</i> 	<p><i>Transition from the continuous provision of Reception to the more structured teaching of Year 1.</i></p> <ul style="list-style-type: none"> • Children engage in exploration activities such as: • • Animal grouping and sorting by different parameters (mammals/reptiles and other groups, fur/feathers, hibernation, habitats etc). • • Using equipment such as magnifiers to observe closely. • • Seasonal image sorting and writing • • Material investigations, including messy play, water tray for vocabulary extension, model-making and creative artwork using different materials. • • Observational drawings of plants, trees and animals. • • Exploring magnetism, reflection, light sources etc. in play scenarios. 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> • explore and compare the differences between things that are living, dead, and things that have never been alive. <i>Identify the key functions that show something is alive (breathe, move, grow, excrete, eat, reproduce)</i> • 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.

Science Curriculum Overview

Nursery	Reception	Year 1	Year 2
UW - Autumn 2	UW - Autumn 2	Autumn 2	Autumn 2
<p>Children will be learning to:</p> <ul style="list-style-type: none"> explore and respond to different natural phenomena in their setting and on trips. (local visits to green spaces etc) use all their senses in hands-on exploration of natural materials 	<p>Children will be learning to:</p> <ul style="list-style-type: none"> <i>continue to build on and 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 (ELG)</i> 	<p>Everyday materials</p> <ul style="list-style-type: none"> distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties 	<p>Uses of everyday materials</p> <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. identifying and classifying the uses of different materials, and recording their observations.
Nursery	Reception	Year 1	Year 2
UW - Spring 1	UW - Spring 1	Spring 1	Spring 1
<p>Children will be learning to:</p> <ul style="list-style-type: none"> talk about what they see using a wide vocabulary. explore collections of materials with similar and/or different properties. Plant seeds and care for growing plants. begin to understand the need to respect and care for the natural 	<p>Children will be learning to:</p> <ul style="list-style-type: none"> explore the natural world (continuous provision) Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) 	<p>Animals including humans</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. 	<p>Animals including humans</p> <ul style="list-style-type: none"> identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (<i>revision of Year 1 content</i>) 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.

Science Curriculum Overview

environment and all living thing			<ul style="list-style-type: none"> observing, through video or first-hand observation and measurement, how different animals, including humans, grow.
Nursery	Reception	Year 1	Year 2
UW - Spring 2	UW - Spring 2	Spring 2	Spring 2
<p>Children will be learning to:</p> <ul style="list-style-type: none"> continue to talk about what they see using a wide vocabulary. explore collections of materials with similar and/or different properties 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 	<p>Children will be learning to:</p> <ul style="list-style-type: none"> explore the natural world around them, making observations and drawing pictures of animals and plants 	<p>Seasonal changes (& Plants)</p> <ul style="list-style-type: none"> observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies. <p><i>Use the early Spring months to plant seeds and bulbs and begin to explore the curriculum areas:</i></p> <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. 	<p>Plants</p> <p><i>Use the early Spring months to plant seeds and bulbs and explore the curriculum areas:</i></p> <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. observing and recording the growth of a variety of plants as they change over time from a seed or bulb setting up a comparative test to show that plants need light and water to stay healthy.

Science Curriculum Overview

Nursery	Reception	Year 1	Year 2
UW - Summer 1	UW - Summer 1	Summer 1	Summer 1
<p>Children will be learning to:</p> <ul style="list-style-type: none"> ● explore and talk about different forces they can feel ● talk about the differences between materials and changes they notice 	<p>Children will be learning about - Seasons -</p> <ul style="list-style-type: none"> ● understand the effect of changing seasons on the natural world around them 	<p>Plants</p> <ul style="list-style-type: none"> ● Identify and name common wild and garden plants (including deciduous and evergreen) ● Identify and describe basic structure of a variety of common flowering plants <p><i>Begin to explore the Year 2 curriculum areas:</i></p> <ul style="list-style-type: none"> ● Observe and describe how seeds and bulbs grow ● Explore how plants need water, light and a suitable temperature to grow and stay healthy 	<p>Animals including humans</p> <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. ● observing, through video or first-hand observation and measurement, how different animals, including humans, grow (<i>life cycles</i>)
Nursery	Reception	Year 1	Year 2
UW - Summer 2	UW - Summer 2	Summer 2	Summer 2
<p>Children will be learning to:</p> <ul style="list-style-type: none"> ● explore and talk about different forces they can feel ● talk about the differences between materials and changes they notice ● Use all their senses in hands-on exploration of natural materials ● talk about what they see, using a wide vocabulary 	<p>Children will be learning to:</p> <ul style="list-style-type: none"> ● understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. (ELG) 	<p>Scientific enquiry and revision of taught content</p> <p>Explore scientific ideas through experimentation. For example:</p> <p>Test for waterproof/not waterproof (Good materials for an umbrella?)</p> <p>Explore suitability of materials for different uses (eg for bookshelf, lining a dog bed, making a spacesuit/parachute etc)</p> <p>Predict and test materials for float/sink</p> <p>Explore transparent/opaque/ translucent</p> <p>Categorise sources of light into natural and man-made.</p> <p>Revision of subject areas from the year requiring further teaching input.</p>	<p>Scientific enquiry and revision of taught content</p> <p>Explore scientific ideas through experimentation, focusing on the skills of scientific enquiry (fair testing etc, where just one variable changes).</p> <ul style="list-style-type: none"> - Asking simple questions and recognising that they can be answered in different ways - Observing closely, using simple equipment - Performing simple tests - Identifying and classifying - Using their observations and ideas to suggest answers to questions - Gathering and recording data to help in answering questions <p>Revision of subject areas from the year requiring further teaching input.</p>

Science Curriculum Overview

<p>EYFS</p>	<p>Development Matters: EYFS Statutory Educational Programme: Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them.</p> <p>Early Learning Goals:</p> <p>The Natural World</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.
<p>KS1</p>	<p>End of Key Stage 1 expectations:</p> <ul style="list-style-type: none"> • Experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. 'Working scientifically' means that scientific methods and skills will be linked to specific elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1. • Working scientifically: During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions. Pupils in years 1 and 2 should explore the world around them and raise their own questions. They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. They should use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, and, with guidance, they should begin to notice patterns and relationships. They should ask people questions and use simple secondary sources to find answers. They should use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language. These opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the programme of study can be met by the end of year 2.

Science Curriculum Overview

-

Specific expectations for end of Year 1:

- **Plants:** Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem). Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.
- **Animals including humans:** Pupils should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.
- **Everyday materials:** Pupils should explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Pupils should explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil. Pupils might work scientifically by: performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?'

Specific expectations for end of Year 2:

- **Living things and their habitats:** Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. Pupils should be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest. Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings

Science Curriculum Overview

using charts. They should describe how they decided where to place things, exploring questions for example: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. They could construct a simple food chain that includes humans (e.g. grass, cow, human). They could describe the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there.

- **Plants:** Pupils should use the local environment throughout the year to observe how different plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants. Note: Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them. Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.
- **Animals including humans:** Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They should also be introduced to the processes of reproduction and growth in animals. 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. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult. Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.
- **Uses of everyday materials:** Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupils might find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam. Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.



Science Curriculum Overview



Science Curriculum Overview