

Key Learning in Science: Year 2

Please Note: There should be plenty of opportunities throughout the year for children to use the school/local environment to observe plant growth, changes in habitats across the seasons and life cycles of a variety of different animals (for example: chicks/other birds, tadpoles/frogs, caterpillars/butterflies, other mini-beasts, other young animals during trips to farms/zoos). This could be done through an ongoing/monthly nature journal to observe, record and review over a period of time. The unit of work on 'Animal survival and growth' can be covered in the same half term as work on 'Habitats' in order to link the concept of survival.

Environment - Living things and their habitats	Animals - Animal survival and growth	Health – How we grow and stay healthy
<p>Pupils should be taught to:</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. 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 micro-habitats. 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. Different kinds of plants and animals live in different kinds of places. There are different kinds of habitat near school which need to be cared for Habitats provide the preferred conditions for the animals/plants that live there (compare local habitats and less familiar examples). <p>Notes and Guidance (non-statutory):</p> <p>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.</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Sorting and classifying things as to whether they are living, dead or were never alive. Recording their findings using charts Describing how they decided where to place things, Exploring questions such as: 'Is a flame alive? Is a deciduous tree dead in winter?' Talking about ways of answering their questions. Constructing a simple food chain that includes humans (e.g. grass, cow, human); Describing the conditions in different habitats and micro-habitats (under log, on stony path, under bushes); Finding out how the conditions affect the number and type(s) of plants and animals that live there. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Notice that animals, have offspring which grow into adults. Find out about and describe the basic needs of animals, for survival (water, food and air). <p>Notes and Guidance (non-statutory):</p> <p>Pupils should be introduced to the basic needs of animals for survival. They should also be introduced to the process 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.</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how different animals grow; Asking questions about what things animals need for survival suggesting ways to find answers to their questions. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Notice that humans, have offspring which grow into adults. Find out about and describe the basic needs of 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. Medicines can be useful when we are ill. Medicines can be harmful if not used properly. <p>Notes and Guidance (non-statutory):</p> <p>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 process of reproduction and growth in animals [humans]. 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. Growing into adults can include reference to baby, toddler, child, teenager, adult.</p> <p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> Observing, through video or first-hand observation and measurement, how humans grow. Recording their findings using charts. Asking questions about what things animals [humans]. need for survival and what humans need to stay healthy. Suggesting ways to find answers to their questions.

Plants – Plant growth

Pupils should be taught to:

- 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.
- Plants are living and eventually die

Notes and Guidance (non-statutory):

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 the process 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.

Material Properties – Uses of Materials)

Pupils should be taught to:

- 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
- Some materials can be found naturally; others have to be made

Notes and Guidance (non-statutory):

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.
- Thinking about unusual and creative uses for everyday materials.

Year Group Expectations: Year 2

Sort / group / compare / classify / identify	Research <i>finding things out using a wide range of secondary sources of information and recognising that scientific ideas change and develop over time</i>	Modelling	Recording of 'Explore / Observe' <i>developing a deeper understanding of a wide range of scientific ideas encountering more abstract ideas</i>	Questioning <i>asking their own questions about scientific phenomena</i>	Planning <i>using different types of scientific enquiry making decisions about and explaining choices for testing</i>
<ul style="list-style-type: none"> Compare and contrast... a variety of things - focusing on the similarities as well as the differences] including how different things change over different periods of time [objects, materials or living things]. Sort and classify things according to a variety of different features (e.g. "I know it is living because it .. and it..). Decide how to sort and group objects, materials or living things. Name/identify a variety of common features and/or uses for objects, materials or living things. Name/Identify common examples and some common features. 	<ul style="list-style-type: none"> Find out about the work of famous scientists - historical & modern day (Y1/2). Use simple and appropriate secondary sources (such as books, photographs and videos) to find things out / find answers. (Y1/2). Ask people questions (Y1/2). 		<ul style="list-style-type: none"> Record and communicate their findings using simple scientific language. Use their own ideas and their observations to offer answers to questions. Observe and describe simple processes/cycles with several steps e.g. growth cycle, simple food chain, saying how living things depend on one another. Recognise and describe a series of changes over time (e.g. growth). Observe, and record make drawings to represent things in the real world with some accuracy. 	<ul style="list-style-type: none"> Raise their own questions based on or linked to things they have observed. 	<ul style="list-style-type: none"> Set up a comparative test. In a group choose/suggest ways in which they might answer scientific questions. Suggest a [practical way] to find answers to their questions [and listen to the suggestions of others. Use different types of scientific enquiry to answer their own questions.
Equipment and measurement <i>increasing complexity with increasing accuracy and precision make their own decisions about the data to collect</i>	Communicating Recording <i>recording data, reporting findings, presenting findings</i>	Considering the results of an investigation / writing a conclusion			Collaborating
<ul style="list-style-type: none"> Observe more accurately by measuring non-standard and standard units. Use their senses, simple measurements and equipment to gather data with increasing independence. Gather data to help in answering questions. 	<ul style="list-style-type: none"> Record and communicate their findings in a range of ways with increasing independence e.g. talk/discuss; write/describe; draw pictures; take photographs; video; make/construct a variety of tables, charts [including simple, bar charts produced as a group and displays. Make some choices on how to communicate their ideas to a range of audiences in a variety of ways. Use simple scientific language in their recording. Record simple data with some accuracy. Record data to help in answering questions. 	Describe results <i>Looking for patterns analysing functions, relationships and interactions more systematically</i>	Explain results <i>Draw conclusions based on evidence</i>	Trusting my results	<ul style="list-style-type: none"> Listen to the suggestions of others.
<ul style="list-style-type: none"> With guidance, begin to notice patterns and relationships. Order their findings. Recognise if results matched predictions. Talk/ discuss/ describe/record with some accuracy what they have seen/ what has happened. 	<ul style="list-style-type: none"> Begin to explain how they know...use the word because "it is because...." (Y2) / suggest how and/or why things happen. Draw on use their results and their own experience to answer their questions. Begin to use simple scientific language to describe or explain what they have found out. Read and spell scientific vocabulary. 				

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