

Science: Living things and their habitats- year 6

Definition: Living things are made of cells, grow and develop, use energy, reproduce, respond to their environment and adapt.

Habitat (noun) The place where a particular organism lives, which provides all its basic needs for survival and reproduction.

Microhabitat (noun) a very small habitat, forming part of a much larger habitat.

Biology definition: The word **biology** is derived from the greek words /bios/ **meaning** /life/ and /logos/ **meaning** /study/ and is **defined** as the science of life and living organisms. An organism is a living entity consisting of one cell e.g. bacteria, or several cells e.g. animals, plants and fungi.

POS:

- ❖ Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.
- ❖ Give reasons for classifying plants and animals based on specific characteristics.

Prior learning:

- ❖ Recognise that living things can be grouped in a variety of ways.
- ❖ Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
- ❖ Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird-.year 4
- ❖ Describe the life process of reproduction in some plants and animals. Year 5

Links to other science topics:

Plants 1/2
 Animals including humans KS1
 Living things and their habitats classifying
 Living things and their habitats UKS2 classification

Disciplinary concepts:

Similarities and differences: How are living things similar and different within the kingdoms?

Variation: How do species of plants and animals vary?

Common misconceptions:

Some children may think all micro-organisms are harmful.

Children may misidentify an organism such as coral as a plant. The coral that they see on the beach is just exoskeleton, inside which is actually a living animal. Coral cannot photosynthesise – it needs to eat plankton to survive.

There are many plants that children might not immediately think of as plants since they don't have flowers such as mosses and ferns.

The reverse is also true: mushrooms are often thought of as plants – because they have roots and grow in the ground – but they do not contain chlorophyll, and they are classed as fungi.

Core Knowledge:

Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other living things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot.

Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms.

Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.

Wider Knowledge:

It is important for biologists to be able to understand how living things are related to and depend on each other, in order to appreciate the diversity of life on the planet and the need for conservation. Recent estimates indicate that while there are over 8 million species of organisms on the Earth, only 1.3 million have been found and categorised so far.

Understanding and appreciating the enormous diversity of life on Earth enables scientists to make great advances in various fields, such as medicine. By looking in detail at organisms' characteristics, specifically their similarities and differences, it is possible to group and classify them, helping to understand their behaviour, relationships and interdependencies.

As human beings, our classification is as follows:

Kingdom: Animal

Phylum: Vertebrate

Class: Mammal

Order: Primate

Family: Hominid

Genus: Homo

Species: Homo sapiens

Working scientifically:

- Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important.
- Use first-hand observation to identify characteristics shared by the animals in a group.
- Use secondary sources to research the characteristics of animals that belong to a group.
- Use information about the characteristics of an unknown animal or plant to assign it to a group.
- Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys.

End Goals:

- To give examples of animals in the five vertebrate groups and some of the invertebrate groups
- To give the key characteristics of the five vertebrate groups and some invertebrate groups
- To compare the characteristics of animals in different groups
- To give examples of flowering and non-flowering plants

CPD: Reach out CPD – UKS2 classification

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