

YEAR 4 UNIT 2: Living things (Living things and their habitats)

Enquiry Question: How are animals grouped?

Related units: Year 3 Unit 5: How does your garden grow (Plants); Year 3: Unit 2: Why is a balanced diet important? Year 5 Unit 3: How do life cycles vary?

Unit overview

National Curriculum link Year 4: Living things and their habitats

Children will recognise that living things can be grouped in a variety of ways. They will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. They will recognise that environments can change and that this can sometimes pose danger to living things. Children already should know that living things can be animals or plants and that objects can be grouped according to their properties. They should also know that a natural environment or the home of a variety of plants and animals is called a habitat; that we have seasons and that these are associated with different weather conditions; that objects and living things can be identified using a key; and that living things can be grouped based on their external features. Children already know that living things can be animals or plants and that objects can be grouped according to their properties. They know that a natural environment or the home of a plant or animal is called a habitat that we have seasons and these are associated with weather conditions, that objects and living things can be identified using a key; and that they can be grouped according to their external features.

Assessment:

1. Explain 24 different ways in which living things are classified
2. Name a a) common vertebrates; b) mammal; c) reptile and d) bird
3. Explain how habitats can change and how this can pose dangers to living things
4. Give 4 things that can be done to care for the environment

Scientific vocabulary

- Classify
- Key
- Organism
- Skeleton
- habitat
- Vertebrate
- Invertebrate
- Insect
- Millipede
- Centipede
- Mammal
- Bird
- Amphibia
- Reptile
- Fish
- Flowering plant
- Species

Working Scientifically

- Using and making simple guides or keys to explore and identify local plants and animals
- Making guide to local living things
- Raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched
- Explain how living things can be classified

Cross-curricular links

Maths:

- Classify objects
- Tally and frequency tables
- Interrogate results recorded in tables

English:

- Use scientific vocabulary
- Write up investigations

Teacher knowledge

There are millions of different plant and animal species in the world. It is currently estimated that there are around 1.3 million animal species (of which 1 million are insects!) and 320,000 plant species. (We use the word 'species' to describe a group of living things that are so similar that they are able to interbreed to create fertile offspring). Living things are divided into groups, with members of each group having similar features. The obvious first grouping is whether something is an animal or a plant (or fungus or microbe). Each time we divide the living things by characteristics, the groups become smaller, until we end up with the organism being identified. The process of classification makes it easier to identify a species when it is discovered, and to see whether it is an existing species or a new species. It can also help to see which species are closely related in evolutionary terms.

The animal kingdom can be divided into two broad groups based on whether they have a backbone (vertebrate) or not (invertebrate). The plant kingdom can also be divided into two groups: flowering and non-flowering plants. The five groups of vertebrates are fish, amphibian, reptile, bird and mammal. Fish, reptiles and amphibians are cold-blooded. Amphibians have lungs, which allow them to spend a lot of time out of water, but they return to water to lay lots of jelly-like eggs. Reptiles have dry scaly skin and live on land, where they lay their eggs – these look a lot like bird eggs. Mammals and birds are warm-blooded. Birds are covered in feathers and lay eggs with a hard shell. Mammals all have fur (or hair) – even if it is very fine, as in the case of whales and dolphins. They all give birth to live young and female mammals produce milk to feed them. Non-flowering plants include plants such as conifers, ferns and mosses. Conifers produce pollen and seeds in the same way as flowers. They are wind-pollinated. Ferns and mosses do not produce seeds – they reproduce by making spores, which can grow into new plants. Flowering plants include all other plants, including moss trees, grasses and shrubs. They produce flowers, which produce pollen. Some flowers are adapted to attract insects for pollination, but other flowers use wind or water for pollination.

Invertebrates are animals without backbones. They range from totally soft-bodied animals such as sponges and jellyfish, through shelled animals such as mussels and barnacles, to complex spiders and insects. Those with no skeleton at all and a body made of segments e.g. earthworms, form part of a group called annelids. Other soft-bodied invertebrates are 'molluscs', which often have shells, such as mussels or snails. Some do not, such as octopuses and squid. Myriapodes (meaning 'many legs') have long thin bodies with many segments and a hard exoskeleton (exo- meaning 'outside'). Centipedes have one pair of legs per body segment and can have between 20 and 300 legs. Millipedes have two pairs of legs per segment and can have between 36 and 400 legs – not the million legs that children think they have! The arachnids include spiders and scorpions. They have four pairs of legs and a two-part body. They have a hard exoskeleton, which often forms lots of protective bristles. Insects are one of the most numerous groups of the planet, with over a million known species. Insects are one of the most numerous groups on the planet, with over a million known species. Insects have a three-part body and three pairs of legs. Insects are the only invertebrates who are able to fly. This has played a major role in their success.

Did you know?

- Of the 1.3 million animals on our planet, over 1 million of them are insects
- A sea cucumber is in fact an animal
- Scientists believe that there are about 7 million living things that have not been found yet. Many of them may become extinct before they can be discovered.
- For every person on Earth, there are 1.5 billion insects.

Misconceptions: Children might think:

- Trees are not plants
- Insects are not animals
- Humans are not animals
- That there are only two groups of living things: animals and plants
- That all 'bugs' are insects
- That all 'bugs' are small

Resources

www.crickweb.co.uk/ks2science.html#habitats4b - games for children to play.

www.bbc.co.uk/bitesize/ks2/science/living_things/variation/play/ – games for children to play.

www.tes.co.uk/teaching-resources/primary-42198/ks2-science-44091/living-things-44092/