

Living things and their habitats.

Classification is the process by which living things are organised into groups according to their features. All living things can be classified in a variety of ways, using keys, tables and charts to organise. Living things survive in various habitats, and we will investigate the Polar Regions in greater depth this half term.

Key facts

- There are no land-dwelling mammals in the Antarctic although the Arctic has many land-dwelling mammals include musk ox, reindeer, caribou, fox, hare, wolf, lemming and bears.
- The seas of the Antarctic and the Arctic both have marine mammals.
- Above the Arctic Circle, there is all-day sunshine in the summer for at least one day a year (and there's a full 24 hours of darkness on at least one day too!)
- Climate change is the polar bears' biggest threat. Every year, global warming means sea ice melts earlier and reforms later giving polar bears reduced hunting time.
- The classification of lifeforms is called *taxonomy*. Linnaeus classified living things by looking for similarities.

Carl Linnaeus

Carl Linnaeus is famous for his work in Taxonomy, the science of identifying, naming, and classifying organisms (plants, animals, bacteria, fungi and microorganisms.) In addition to creating this system, he named 7,700 plants and 4,400 animals.

He used Latin and Greek in this system because those languages were taught around the world, and are still used today.



Key Vocabulary

Fungi	plants that have no flowers, leaves, or green colouring, such as a mushroom or a toadstool. Other types of fungus such as mould are extremely small and look like a fine powder.
Mushroom	fungi that you can eat
Toadstool	a fungus that you cannot eat because it is poisonous
Fermentation	a chemical change that happens in vegetable and animal substances.
Microbe	a very small living thing, which you can only see if you use a microscope.
Bacteria	very small organisms. Some bacteria can cause disease.
Species	a class of plants or animals whose members have the same main characteristics and are able to breed with each other.
Organism	an animal or plant, especially one that is so small that you cannot see it without using a microscope.
Flora	You can refer to plants as flora, especially the plants growing in a particular area.
Fauna	Animals, especially the animals in a particular area, can be referred to as fauna.
Vertebrate	a creature which has a spine. Mammals, birds, reptiles, and fish are vertebrates.
Invertebrate	a creature that does not have a spine, for example an insect, a worm, or an octopus.
Mammal	animals such as humans, dogs, lions, and whales. In general, female mammals give birth to babies rather than laying eggs, and feed their young with milk.
Bird	a creature with feathers and wings. Female birds lay eggs.
Amphibian	animals such as frogs and toads that can live both on land and in water.
Reptile	a group of cold-blooded animals which have skins covered with small hard plates called scales and lay eggs. Snakes, lizards, and crocodiles are reptiles.
Fish	a creature that lives in water and has a tail and fins.

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Prior Learning

Year 2:

- make decisions, giving reasons, about whether things are alive, dead, or have never been alive
- describe the survival needs of animals, including humans
- recognise that animals and plants usually live in habitats that are suited to them
- describe how animals and plants depend on each other (links to food chains and feeding relationships)
- identify and name through first-hand experience, a variety of plants and animals in their habitats, including micro-habitats e.g. *under log, on stony path, under bushes*
- describe how animals get their food from other animals and/or from plants
- identify and name different sources of food (link to carnivores, herbivores and omnivores Y1)
- use simple food chains to describe feeding relationships, i.e. who eats who

Year 4:

- Group living things in different ways
- Use classification keys to group, identify and name living things.
- Create classification keys to group, identify and name living things.
- Explain how environments can change and that this can sometimes pose dangers to living things.

Year 5:

- Describe and compare different life cycles, in some specific types of animals and plants, e.g. *bat or hedgehog, newt, bumblebee, peregrine falcon*
- Describe the differences between different life cycles.
- Describe the main changes as humans grow into adults and develop to old age, i.e. *baby, child, adolescent, adult, old person*
- Describe and compare different reproductive processes in some animals and plants, including asexual (e.g. *taking cuttings*) and sexual reproduction in plants and sexual reproduction in humans and other animals.

Following on:

KS3

Structure and function of living organisms

Cells and organisation

- cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope
- the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts
- the similarities and differences between plant and animal cells
- the role of diffusion in the movement of materials in and between cells
- the structural adaptations of some unicellular organisms
- the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms

The skeletal and muscular systems

- the structure and functions of the human skeleton, to include support, protection, movement and making blood cells
- biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles
- the function of muscles and examples of antagonistic muscles

Nutrition and digestion

- the content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed
- calculations of energy requirements in a healthy daily diet
- the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases
- the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts)
- the importance of bacteria in the human digestive system
- plants making carbohydrates in their leaves by photosynthesis and gaining mineral nutrients and water from the soil via their roots

Working Scientifically

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

Using test results to make predictions to set up further comparative and fair tests.

Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

Identifying scientific evidence that has been used to support or refute ideas or arguments.