**The Classification of Living Things**

Classifying living things has been a challenge to scientists for hundreds of years; many have argued about the ways they should be sorted and grouped. Usually, organisms in one set or group should share several features in common, not just one. For instance, we may think that all birds belong together because they fly – but that would mean that penguins and ostriches are excluded from that group while bats are included!

Over the years, as scientists built up a picture of the way organisms have evolved from simple to more complex life-forms, they began to realise that they could be either closely or distantly related to each other. For instance, tigers, lions, panthers and the domestic cats we keep as pets are all closely related because they share a common ancestor.

**Plants**

We can classify plants and fungi in similar ways. Plants, for instance, can be divided into two major groups: those that produce seeds and those that don’t. Those that don’t produce seeds tend to be simpler in structure and are older in evolutionary terms (and so would be lower down in the fossil record). Examples are algae (including all seaweeds), mosses and ferns. Seed-producing plants can be further subdivided into two groups: flowering plants (such as poppies, cacti, grasses and oak trees) and conifers (such as pine trees and fir trees).

**Microbes**

Scientists use the word *microbes* (or *micro-organisms*) as a term of convenience. Microbes do not all belong to the same scientific group; the only thing they share in common is the fact that they are all too small to see without a microscope! So, microbes can include examples from other groups (for example there are microscopic animals and plants). Some important groups of microbes include bacteria, viruses and microscopic fungi. Some cause diseases such as measles, polio, cholera and the common cold and these are often known as *germs* (harmful microbes).

However, other microbes are essential to the balance of life: some help in the decomposition (decay) of dead organisms, the release of vital nutrients into the soil and the balance of oxygen and carbon dioxide levels in the atmosphere. Others are found inside our gut (small intestine) and without them we would not be able to efficiently digest our food. They are even essential in the commercial production of certain foods (such as bread, cheese, yoghurt, beer and wine). So, another – less scientific – way of classifying microbes could be to subdivide them as *harmful* or *beneficial*.