Adaptations are features of living organisms that help them survive. These can be to do with their physical appearance - structural adaptations - or they can be behavioural adaptations, which affect what the organisms do. Adaptations can also be physiological – how the organism functions to help it to survive.

Cacti are adapted to survive hot conditions. They have spines instead of braod leaves to stop water loss. This a structural adaptation

Wolves tend to live in packs. This is a behavioural adaptation.

Mammals, including humans, produce milk for their young. This is an example of a physiological adaptation

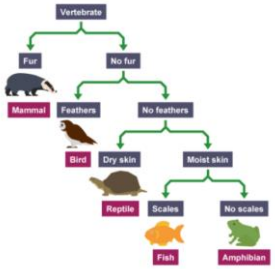
A **habitat** is a place where an organism makes its home.
A habitat meets all the environmental conditions an organism needs to survive. For an animal, that means everything it needs to find and gather food, select a mate, and successfully reproduce.

For a plant, a good habitat must provide the right combination of light, air, water, and soil.

The Dichotomous Key is a tool that scientists use to determine the classification of living things in the natural world - from trees to animals to fungus. It's usually presented in the form of a flowchart, giving you two options on each branch to help make the identification process easier. In fact, the word "Dichotomous" means "divided into two parts

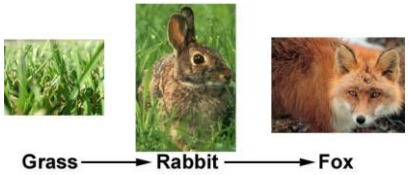
Variation

An example of a dichotomous key looks like this:

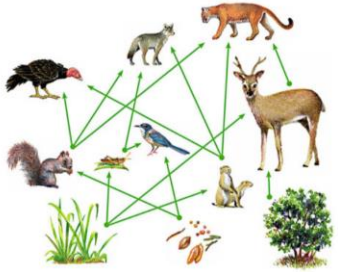


Plants get their energy from the Sun. They are called **producers** because they make their own food.
Animals are called **consumers** because they eat plants and other animals. They do not make their own food.
Animals that eat other animals are called **predators**. The animals they eat are called **prey**.

A food chain is a list of organisms in a habitat that shows their feeding relationship, i.e what eats what

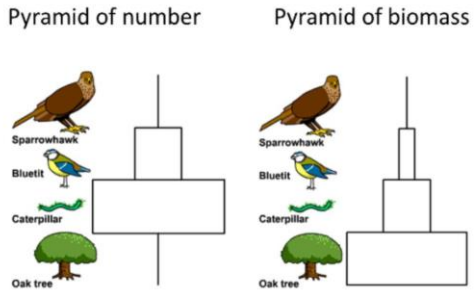


Feeding relationships in habitats are not as simple as one food chain. Organisms can eat or be eaten by more than one organism.



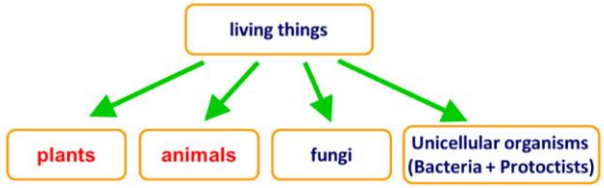
To show the different connections between different feeding relationships in a habitat we can use a food web which shows much more information.

A pyramid of numbers shows the total number of individual organisms at each level in the food chain of an ecosystem.
A pyramid of biomass (energy) shows the total quantity of available energy stored in the biomass of organisms at each level in the food chain of an ecosystem



Biomass = mass of the organisms or the amount of energy stored in each level of a food chain

All organisms are classified into the following groups called Kingdoms. Most living things are classified as plants and animals



We can then further classify each kingdom into more specfic group – for example, animals can be divided into vertebrates and invertebrates.

Variation is the differences between individuals of the same species, caused by genetic and environmental factors. Surveys into variation give data that are continuous, which means to come in a range, or discontinuous, which means to come in groups