



Living things

Living things—MRS NERG

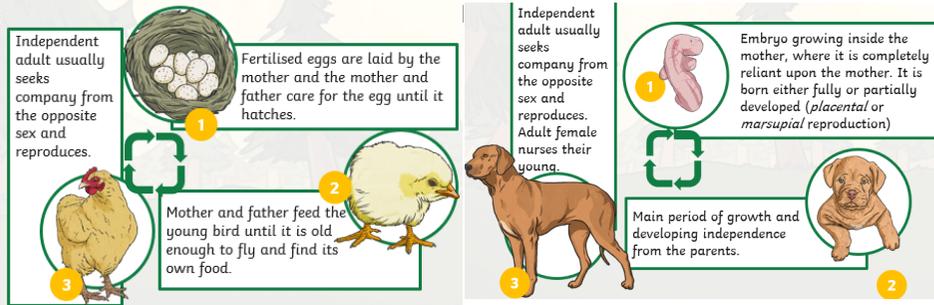
- Movement** All living things **move** from place to place or towards the light
- Respiration** All living things **respire**—use oxygen in the air
- Sensitivity** All living things are **sensitive**—detect changes in their surroundings
- Nutrition** All living things need **nutrition**—by eating foods
- Excretion** All living things **excrete**—get rid of waste
- Reproduction** All living things **reproduce**—create new living things
- Growth** All living things **grow**—babies into adults, seeds into plants

Life cycles

Different types of animals have different stages in the life cycles.

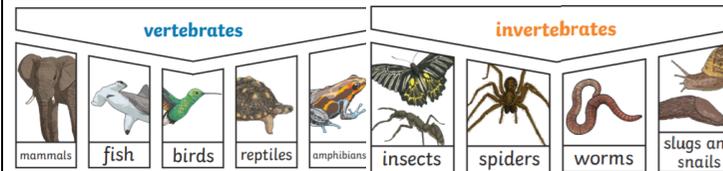
A bird (such as a chicken) and a mammal (such as a dog) have 3 main stages.

The main difference is that birds are hatched from an egg that has been laid, whereas the

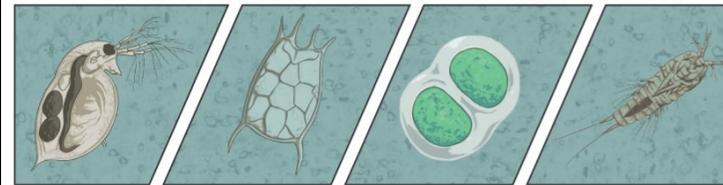


Classification

Animals can be grouped in lots of different ways depending on their characteristics. Two key groups are vertebrates (with a backbone) and invertebrates (no backbone or skeleton inside its body).



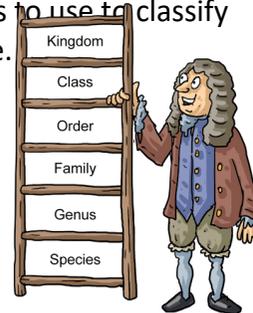
Microorganisms are very tiny living things that can only be seen using a microscope. Examples are viruses, bacteria, moulds, yeast and also some animals like dust mites, and plants like phytoplankton.



Some are helpful and some are not. You can find helpful microbes in cheese and yoghurt, but other harmful bacteria like salmonella can cause food poisoning.

Carl Linnaeus

Carl Linnaeus was a scientist in the 1700 who came up with a system of groups to use to classify nature.



Useful vocabulary

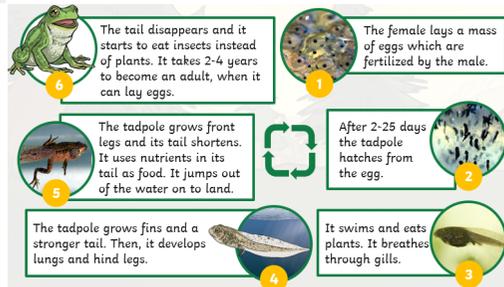
Microorganism—an very tiny organism

Bacteria—a single-celled microorganism.

Metamorphosis—a process where animals change the structure of their body

Amphibians, such as a frogs, have many stages to their life cycle.

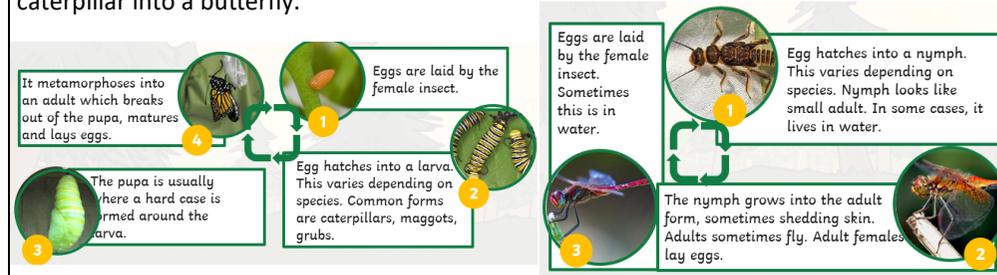
Most amphibians and insects go through a metamorphosis.



Insects either go through complete, or incomplete metamorphosis.

If the metamorphosis is incomplete the young usually looks like a smaller version.

A butterfly changes completely from a caterpillar into a butterfly.





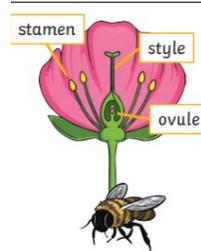
Living things

How do living things reproduce?

Some living things, such as plants, contain both the male and female sex cells. In others, they contain either the male or the female cells.

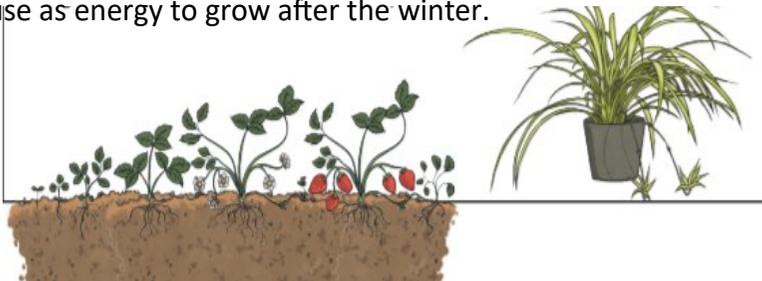
Plants—sexual reproduction

Most plants contain both male and female cells. When pollen from the stamen (male part) of one plant is transferred to the stigma (female part) of another (by wind or insects) it becomes pollinated. After pollination, the pollen grain and the egg join together which is called fertilisation. The fertilised egg will develop into a seed.



Plants—asexual reproduction

Some plants can make new plants without these male and female cells. Potatoes can send out **tubers** underground which grow new roots and create new plants which are a copy of the original plant. Spider plants send out **runners** and create new plants too. Strawberry plants can send out runners as well as growing strawberries which have seeds, which can be spread by birds to grow new plants. Other plants, such as onions, produce bulbs that the plant can use as energy to grow after the winter.



Mammals

There are three groups of mammals that reproduce in different ways. In most mammals (marsupials and placentals), when the male gamete (sex cells) and the female gamete fuse together this becomes a fertilised cell. This cell splits in half and continues to divide, the cells form a baby which grows inside the mother until it is born. Monotremes are still mammals as they are fed milk, but are hatched instead of born.

Placentals: their young grow inside the female's body and are born fully developed.



Monotremes: their young hatch from eggs.

Marsupials: their young are born incompletely developed. They are then carried and fed in a pouch on the female's stomach until they are fully developed.



Useful vocabulary

Gamete (sex cells): The reproductive cells, which have not been fertilised. Male gametes are called sperm, and female gametes are called ova or egg cells.

metamorphosis	An abrupt and obvious change in the structure of an animal's body and their behaviour.	asexual reproduction	One parent is needed to create an offspring, which is an exact copy of the parent.
pollination	The transfer of pollen to a stigma to allow fertilisation.	fertilise	The action of fusing the male and female sex cells in order to develop an egg.
reproduction	The process of new living things being made.	gestation	The length of a pregnancy.
sexual reproduction	Two parents are needed to make offspring which are similar but not identical to either parent.	life cycle	The journey of changes that take place throughout the life of a living thing including birth, growing up and reproduction.