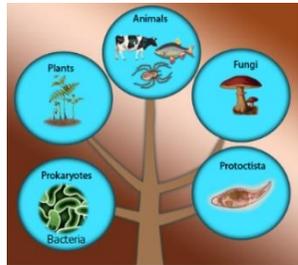


# Living Things and their Habitats: Classification and Lifecycles

## Classification

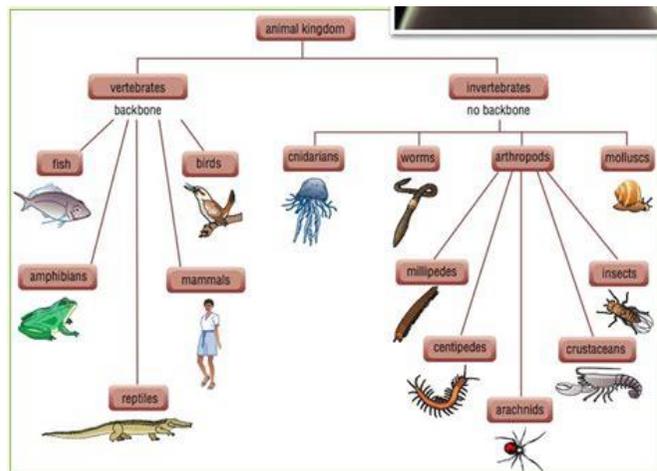
All living things can be group and classified based on **shared characteristics**.



There are five main **kingdoms** (overall groups) of life on Earth. These are:

**Animals, Plants, Fungi, Prokaryotes and Protocista.**

Within each group, there are many **subgroups**. For example, the **Animal Kingdom** can be subdivided into **vertebrates** or **invertebrates**. Within the vertebrate group there are 5 subgroups: **mammals, birds, reptiles, amphibians** and **fish**.



In 1737 **Carl Linnaeus** introduced the **binomial system** for naming **species** in his book *Systema Naturae* (System of Nature).



Group	Body covering	Warm or cold blooded?	Lungs or gills?	Reproduction	Examples
Fish	Scales	Cold	Gills	Lay soft eggs in water	Sharks, trout, salmon
Amphibians	Moist skin	Cold	Gills then lungs	Lay soft eggs in water.	Frogs and newts
Reptiles	Dry scales	Cold	Lungs	Lay rubbery eggs on land (some live birth)	snakes, lizards, crocodiles
Birds	Feathers	Warm	Lungs	Lay hard shelled eggs on land	penguins, emus, owls
Mammals	Skin, most have hair	Warm	Lungs	Live birth. Feed young on milk.	humans, dogs, dolphins

## Features of Vertebrates

## Vocabulary

<b>Vertebrate</b>	Animals with a backbone (spine)
<b>Invertebrate</b>	Animals without a backbone.
<b>Mammals</b>	Mammals give birth to live young, breathe air with lungs and feed their young milk. Often have hair. Includes humans, cats, whales and dolphins.
<b>Amphibians</b>	Vertebrates with moist skin. Cold blooded. Adults have lungs and live on land but lay soft eggs in water, young have gills and live in water. Includes frogs, toads, newts and salamanders.
<b>Reptiles</b>	Vertebrates with dry, scaly skin. Breathe air with lungs. Cold blooded. Mostly lay eggs with rubbery shell (though some have live birth). Includes snakes, lizards and crocodiles.
<b>Birds</b>	Vertebrates with feathers, wings and two legs. Warm blooded. Most can fly.

	Lay eggs with hard shells.
<b>Fish</b>	Vertebrates with scales that live in water. Cold blooded. Breathe through gills. Lay soft eggs in water.
<b>Shared Characteristics</b>	Physical or behavioural features that living things have in common.
<b>Binomial system</b>	The two-part naming system for all living things.
<b>Lifecycle</b>	the series of changes and developments that a plant or animal passes through from the beginning of its life until its death. Includes the production of offspring.
<b>Subgroup</b>	A group within a group.
<b>Classification</b>	The process of grouping living things based on shared characteristics.
<b>Species</b>	A group of living things whose members have the same main characteristics and are able to breed with each other.
<b>Kingdoms</b>	The 5 main groups of living things
<b>Offspring</b>	New individuals produce through reproduction.
<b>Metamorphosis</b>	A complete change of physical form between the young and adult form. Occurs in amphibians and insects.
<b>Prokaryotes</b>	Single celled organisms with no cell nucleus, includes bacteria.
<b>Protocista (aka Protozoa)</b>	Single and multi-celled organisms with a cell nucleus but are not animals, plants or fungi. Include slime moulds, single celled algae and amoeba.
<b>Insects</b>	Invertebrates belonging to the subgroup Arthropods. All have 6 legs and usually a three part body.

# Living Things and their Habitats: Classification and Lifecycles

## Lifecycles

Every living thing can **reproduce** to produce **offspring**. Different groups have different **lifecycles**.

In some groups, the young are similar to the adult.

In other groups young go through **metamorphosis**, a complete physical change, to become adults.

### Mammal (3 main stages)

1. Embryo develops inside the mother
2. Live birth, young fed milk, grow into adults.
3. Adults mate to reproduce. Offspring share DNA from both parents.

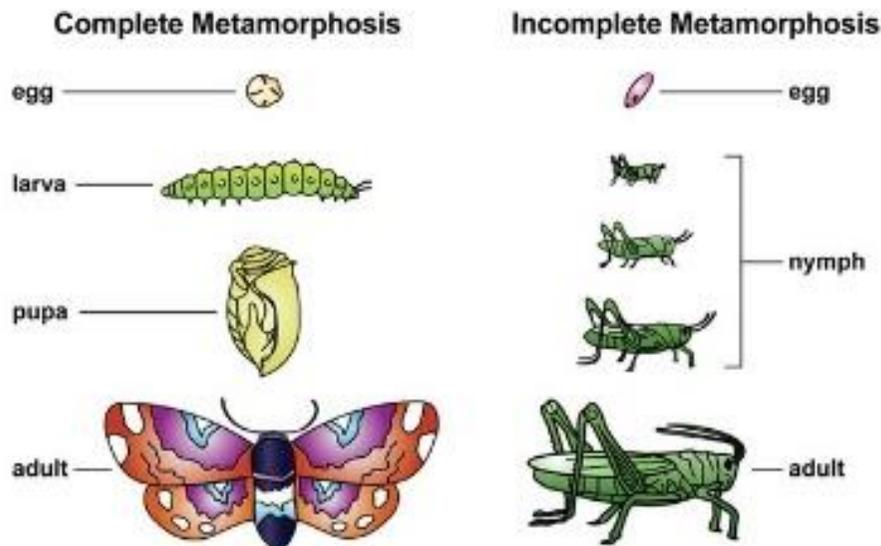
### Amphibians (5 main stages) including metamorphosis.

1. Female lays eggs in water which the male then fertilises.
2. Eggs hatch into tadpoles with gills.
3. Tadpoles develop hind legs and lungs.
4. Tadpole grows front legs and moves onto land.
5. Adults live on land

## Insects

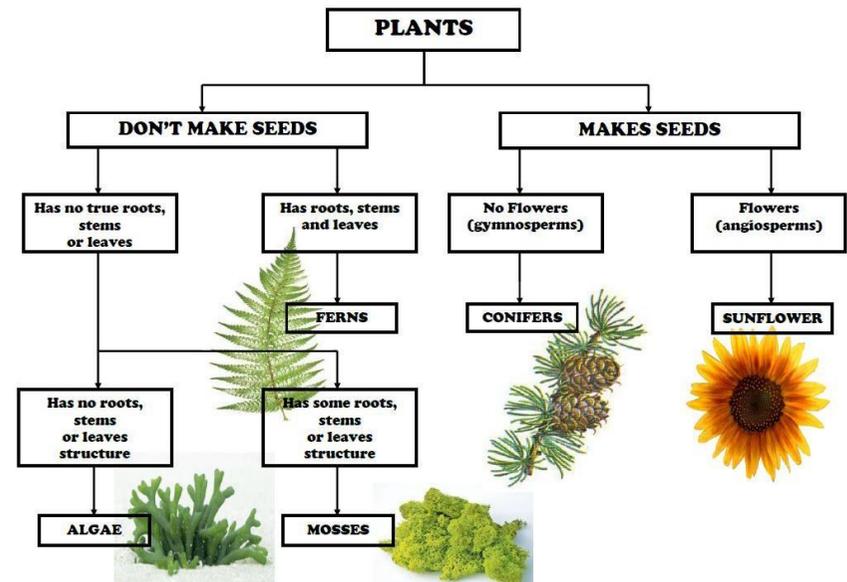
Insects with **complete metamorphosis** (e.g. a butterfly) go through 4 main stages (egg, larvae, pupae, adult).

Insects with **incomplete metamorphosis** (e.g. a grasshopper) have 3 main stages (egg, nymph, adult).



## Plants

Plants can be divided into two groups: those that **make seeds** and those that **make spores**. Seed making plants can be subdivided into **flowering plants** and **non-flowering**.



**Flowering plants** (angiosperms) are usually pollinated (fertilised) by **insects** spreading **pollen**. A seed then develops inside a fruit. Examples: all flowering plants.

**Non-flowering seed plants** (gymnosperms) are usually pollinated by pollen spread by **wind**. The seed then develops in a cone. Examples: mostly evergreen trees.