

# Classification of Living Things

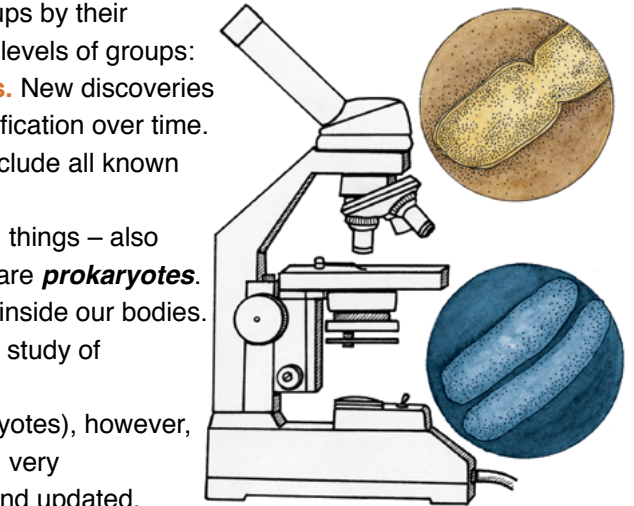
To help understand living things, scientists break them down into groups by their traits. This is called, **biological classification**. Presently, there are 8 levels of groups: **Domain, Kingdom, Phylum, Class, Order, Family, Genus, Species**. New discoveries in genetics may cause some regrouping of organisms and their classification over time. The 3 **Domains** are the highest level of classification to date. They include all known living things on Earth – **Archaea, Eubacteria and Eukaryota**.

The **Eubacteria Domain** is made up of **bacteria** – single-celled living things – also called **microorganisms**. They have no cell nucleus or organelles so are **prokaryotes**. Bacteria is found everywhere on Earth from the soil under our feet to inside our bodies. It can cause many human illness, but is also vital to life on Earth. The study of microorganisms is called **microbiology**.

The **Archaea Domain** also has single-celled microorganisms (prokaryotes), however, archeons can survive extreme conditions like scalding hotsprings and very salty areas. A relatively recent discovery, they are still being studied and updated.

The **Eukaryota Domain** has more complex organisms with cells that have a nucleus and organelles. They are **eukaryotes**. This domain is, at present, broken down into 4 **Kingdoms**: **Protista, Fungi, Plantae, Animalia**.

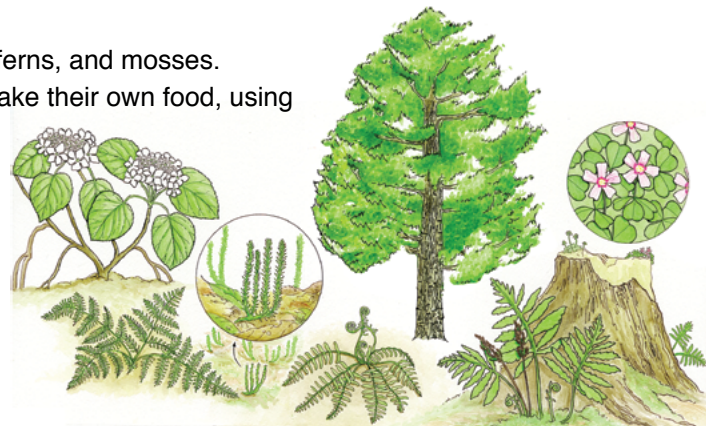
The **Protista Kingdom** is a diverse group, including plant-like **algae**, animal-like **protozoans** and fungi-like **slime molds**.



The **Fungi Kingdom** has mushrooms, yeasts, and molds. They are important detritores, breaking down dead organisms and recycling nutrients back into the environment. They can also cause problems when they invade an organism as a fungal infection, like *athlete's foot*. Still, they are extremely important to humans, as they are the source of penicillin, which kills bacteria, and yeast which drives useful processes like fermentation and rising bread.



The **Plant Kingdom** includes trees, shrubs, flowers, grasses, ferns, and mosses. This group is essential to all life on Earth, because they can make their own food, using sunlight through the process of **photosynthesis**, which feeds all the animal life, including us. They also absorb carbon dioxide and give off life-giving **oxygen**.



The **Animalia Kingdom** includes 9 groups or **Phyla** (plural of phylum):

**Annelida** - segmented worms

**Nematoda** - round worms

**Platyhelminthes** - flat worms

**Arthropoda** - insects, spiders, etc.

**Porifera** - sponges

**Cnidaria** - coral, jellyfish, etc.

**Echinodermata** - starfish, sea urchins, and sand dollars, etc.

**Mollusca** - snails, slugs, clams, oysters, mussels, periwinkles, squid, octopi, etc.

**Chordata** - mammals, birds, reptiles, fish, amphibians, etc.

