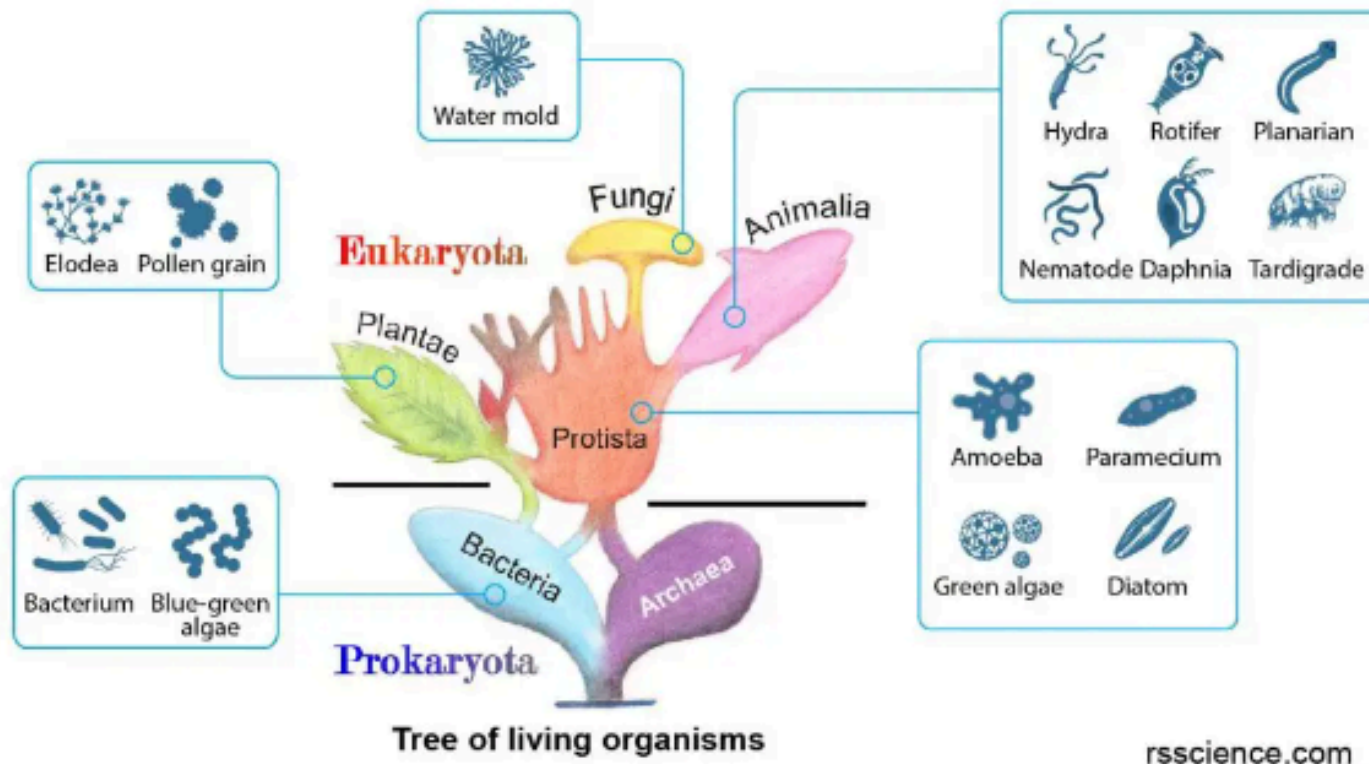


The diversity of microorganisms in a drop of pond water



[In this figure] Tree of living organisms showing the origins of eukaryotes and prokaryotes. See where the microorganisms belong when you find them under your microscope.

The kingdoms of living things and their species at a glance

Fungi

Ascomycetes

Basidiomycetes

Plant

Equiseta

Lycopodia

Gymnosperms

Angiosperms

Ferns

Mosses

Animal

Porifera

Cnidaria

Platyhelminthes

Molluscs

Annelids

Echinoderms

Insects

Crustaceans

Arachnids

Fish

Amphibians

Birds

Reptiles

Mammals

Protista

Green algae

Brown algae

Red algae

Ciliated protozoa

Flagellated protozoa

Amoeboid protozoa

Monera

Archaeobacteria

Eubacteria

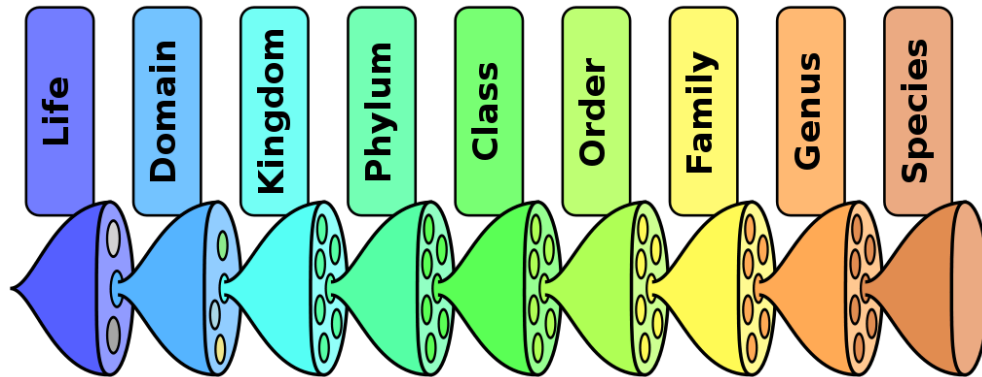
Classification of Organisms

The [Linnaean Taxonomy](#) is a hierarchical classification system for organisms devised by Carl Linnaeus. An organism is assigned to the following levels in the hierarchy (in increasing order of granularity):

- Domain (Bacteria, Archaea (Prokaryotes) and Eukaryotes)
- Kingdom (Bacteria, Archaea, Animalia, Plantae, Fungi, Protista (basically all other eukaryotes apart from the first 3 kingdoms!))
- phylum
- class
- order
- family
- genus and
- species.

The relative level of a group of organisms in this hierarchy determines its [taxonomic rank](#).

💡 The Linnaean Taxonomy was developed way before the idea of evolution arose. As a consequence, despite being a useful framework for classifying organisms, it does not take into account evolutionary relationships (see phylogenetics / cladistics)



Useful references

What can I see in a drop of pond water?

<https://www.microscopy-uk.org.uk/pond/>

<https://rsscience.com/microscopic-organisms-pond-water/>

Tree of Life

https://www.etsu.edu/uschool/faculty/tadlockd/documents/bio_chpt18sec3show.pdf

<https://nittygrittyscience.com/textbooks/change-over-time-classification/section-5-domains-and-kingdoms/>

Glossary of terms

Eukaryotic Cell	A cell with a nucleus and membrane-bound organelles.
Prokaryotic Cell	A cell lacking a nucleus or any other membrane-enclosed organelle.
Unicellular	Composed of a single cell.
Multicellular	Composed of more than one cell.
Heterotrophic (heterotroph)	An organism that must consume other organisms for energy.
Autotrophic (autotroph)	An organism that obtains its energy from an abiotic source such as sunlight or inorganic chemicals.
Sexual Reproduction	The reproductive process involving two parents whose genetic material is combined to produce a new organism different from themselves.
Asexual Reproduction	A method of reproduction that requires only one parent and produces offspring identical to the parent.
Phylogeny	The evolutionary development of a species.
Aerobic	Respiration occurs in the presence of oxygen and in most cells most of the time.
Anaerobic	Respiration occurs without oxygen and much less frequently than aerobic respiration.
Linnean Taxonomy	A classification system for the natural world to standardize the naming of species and order them according to their characteristics and relationships with one another.
Phylogeny	The evolutionary development of a species. Phylogenies are inferred by identifying organismal features, characters, that vary among species. These characters can be: Morphological; Chromosomal; Molecular; Behavioral or ecological.
Cladistics	A classification system based on shared characteristics between groups of organisms and their common ancestor.
Animal	Multicellular, eukaryotic organisms in the biological kingdom Animalia