

Classification

Living organisms are classified in to five kingdoms:

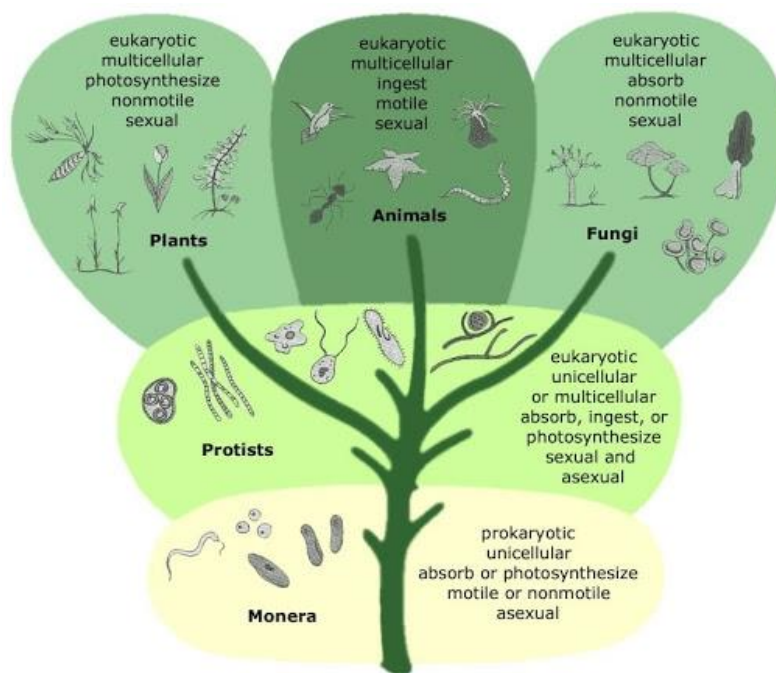
Monera: Include prokaryotic, unicellular organisms, e.g. bacteria and cyanobacteria.

Protista: Include eukaryotic, unicellular organisms, e.g. *Euglena*, *Amoeba* and *Paramecium*.

Fungi: Include eukaryotic, unicellular organisms, e.g. yeasts and multicellular, e.g. mushrooms.

Plantae: Include eukaryotic, multicellular organisms, e.g. gymnosperms and angiosperms (photosynthetic organisms).

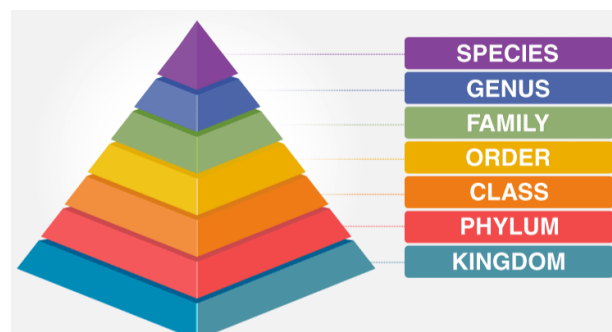
Animalia: Include eukaryotic, multicellular organisms, e.g. invertebrate (95%) and vertebrate (5%) animals.



Each **kingdom** is divided into its own **Phyla**, **Classes**, **Orders**, **Families**, **Genera** and **Species**.

Genus name is always capitalized and either underlined or italicized.

Species names are always lower case and either underlined or italicized.



Kingdom: Protista

Sub-kingdom: Protozoa

General characteristics:

1. They are eukaryotic, unicellular organisms and simple multicellular.
2. They are free-living and some of them are parasitic organisms.
3. They reproduce asexually by simple binary fission and budding, but some of them reproduce sexually by forming gametes, or by conjugation.
4. They are autotrophic such as *Euglena* and heterotrophic such as *Amoeba*.
5. Most of them are microscopic and some of them are large enough to be seen with the naked eye.
6. They are occurring in the sea, in all types of freshwater and in the soil where moisture is present.
7. Feed by pinocytosis, or phagocytosis and some are feed by photosynthesis.
8. Some of them are asymmetrical, but others are symmetrical (bilateral and radial symmetry).
9. The locomotor organelles of the protozoans may be flagella, cilia or pseudopodia.
10. Characteristic of many protozoans is an organelle called the contractile vacuoles or water expulsion vesicle.
11. Gas exchanges occur by the diffusion of oxygen across the cell membrane.

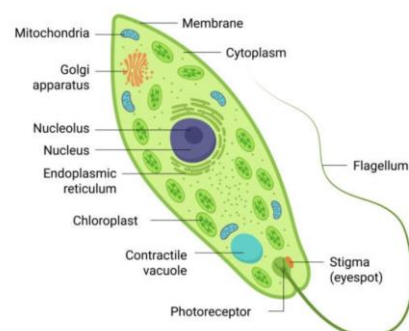
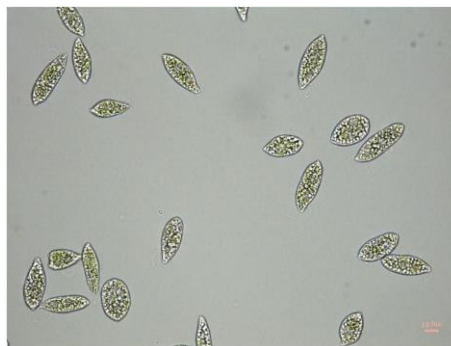
1. Phylum: Mastigophora (Flagellata)

A. Class: Phytomastigophora (Plant- like flagellata): e.g. *Euglena sp.* (now it is algae)

B. Class: Zoomastigophora (Animal- like flagellata): e.g. *Trypanosoma sp.*

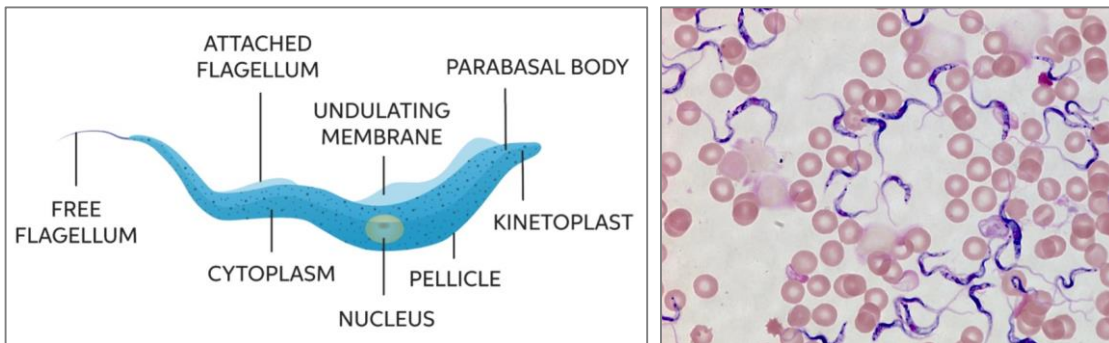
Euglena sp.

1. They live in ponds and stagnant water, producing the green coloration of the water.
2. Moves by whip-like process called flagellum.
3. The body is fusiform, pointed at posterior.
4. The body is differentiated into ectoplasm and endoplasm.
5. The endoplasm with chloroplast, which is containing Chlorophyll, the photoreceptor allowing the organism to swim toward light.

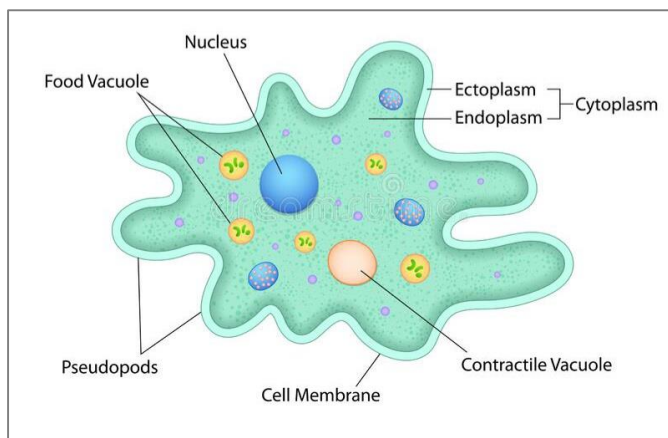


Trypanosoma sp.

1. They usually require two hosts, an invertebrate (in alimentary canal) and vertebrate (in the blood).
2. To transport from host to another need insect vector (Tsetse flies), which causes "African sleeping sickness".
3. The body is long slender, in the anterior of the body there is a flagellum.
4. The ectoplasm is thin, endoplasm with spherical nucleus, near the center of body.

**2. Phylum: Sarcodina****Class: Rhizopoda***Amoeba proteus*

1. Live in fresh water ponds and backwater of rivers.
2. Some species live in marine and others in soil.
3. Feeding on bacteria and other microscopic organisms (phagocytosis).
4. Moves by pseudopodia.
5. Reproduces a sexually by binary fission.
6. Endoplasm contains nucleus, contractile vacuole and food vacuoles.

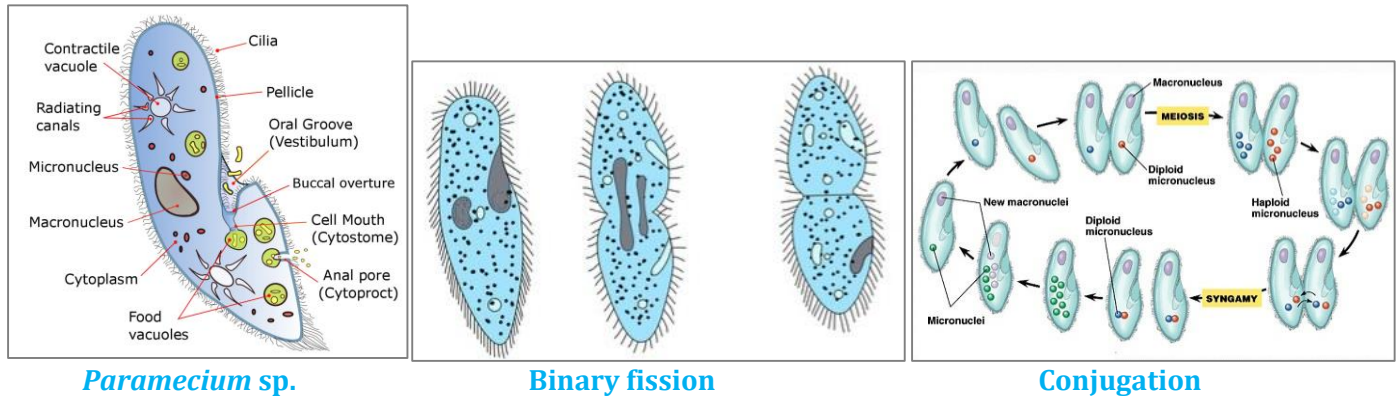


3. Phylum: Ciliophora (Ciliata)

Class: Holotricha

Paramecium sp.

The most well-known example of a ciliates is *Paramecium* sp., they have two nuclei, the large nucleus known as macronucleus (concerned with vegetative functions) and small nucleus known as micronucleus (concerned with reproductive function). They reproduce sexually by conjugation (exchanging genetic information). They can also reproduce asexually by binary fission.



4. Phylum: Sporozoa

Members of this group are non-motile, parasitic organisms. They produce spores during the phase of asexual reproduction of their life cycle.

Toxoplasma gondii

1. *Toxoplasma* is an obligate intracellular parasite.
2. Its crescent shaped.
3. Its life cycle includes two phases; the intestinal (Cat) and extra-intestinal (All infected animals).
4. Animals are infected by eating infected meat, by contact with cat feces, or by transmission from mother to fetus.

