

Excavates: Move via flagella, have a feeding tube, heterotrophic, modified mitochondria.

- *Diplomonads* (free-living & symbiotic, 2 nuclei, multiple flagella)
 - Giardia: drinking unsanitary water, causes **diarrhea**
- *Parabasalids* (anaerobic, symbiotic, some are parasitic)
 - Trichomonas vaginalis: a **sexually transmitted** parabasalid
- *Euglenozoans* (distinctive mitochondria, mixotrophic)
 - Euglenids:
 - Kinetoplastids:
 - Trypanosoma- causing **sleeping sickness**

Chromalveolates: Secondary symbiosis of red algae

- *Stramenophiles:* Many different forms, some colonies, mixotrophic.
 - Oomycetes: water molds, cellulose cell walls, can form aggregated colonies, filamentous bodies, heterotrophic decomposers. (**Downy Mildew**)
 - Diatoms: freshwater or marine, photosynthetic, **glass-like "shells"** known as tests with perforation to allow for exchange of substances
 - Brown Algae: marine, photosynthetic, brown color caused by accessory pigments, gas bladders.
 - Golden Algae: freshwater or marine, all photosynthetic, some mixotrophic
- *Alveolates:* varied motility, most single-celled, mixed nutritional methods, some parasitic.
 - Dinoflagellates: responsible for **red tides** which result in massive fish kills along the Gulf coast

- Apicomplexans(Sporozoans): heterotrophic and **all parasitic**
 - Plasmodium: causes **malaria**
 - Toxoplasms: vectors through cats
- Ciliates: Use cilia for movement and feeding, heterotrophic.
 - **Most complex** of the protists. oral groove, an anal pore and two types of nuclei.
 - Macronucleus handles all the day-to-day business and the micronucleus functions in sexual reproduction or conjugation

Rhizarians: motility based on very thin **pseudopodia**, heterotrophic, some mixotrophic

- Foraminiferans: external multi-chambered shell known as tests composed of CaCO₃
- Radiolarians: internal skeleton-like shell composed of silica (glass)
- Cercozoans: mixotrophic species show unique secondary endosymbiosis

Archaeplastids: Most closely related to land plants

- Red Algae: Mainly shallow water but can occur in clear deep water, red color caused by **phycoerythrin**, cell wall has added polysaccharides, used in cosmetics, ice cream, paint and sushi.
- Green Algae: Chlorophytes and Charophytes, **most probably ancestors of land plants**

Unikonts: very diverse super group that includes protists, fungi and animals

- Amoebozoans:
 - **Slime molds**
 - -a mobile feeding stage
 - -a stationary reproductive stage with a fruiting body that produces spores

- Acellular(Plasmodial): Mitosis but not cytokinesis.
plasmodium moves through decaying material, engulfing bacteria and food particles. In harsh environmental conditions (dry) the plasmodium forms a mound and produces a stalked fruiting body that produces haploid spores.
- Cellular slime: During times of environmental stress, a signal causes the cells aggregate into a **pseudoplasmodium** but remain individual cells. This aggregate of cells is still mobile and migrates to a suitable spot for the formation of the fruiting body
- Gymnamoebas
 - Entamoebas
 - One species causes **amoebic dysentery**