Kingdom Protoctista

Key words

- kingdom, (-s)
- phylum, phyla
- class, (-es)
- protoctist, (-s)

Protoctists (protoctistants) are eukaryotic unicellular or simple multicellular organisms without real tissues. This diverse group is divided into two main groups according to their form of nutrition:

Protozoans are heterotrophic organisms and **Algae** are autotrophic organisms.

Protozoans

Protozoans are single-celled organisms which resemble animals in many ways (they are motile, heterotrophic, and react to environmental changes). That is why they were once called unicellular animals.

They feed off organic matter or other single-celled organisms. They generally live in the sea and in fresh waters, but some live inside other organisms (parasites), causing illness to their host. Two examples are *Paramecium*(found in aquatic environments) and *Plasmodium*, a parasite that causes malaria.

Points to remember:

•Sometimes called protists.
•Eukaryotic.
•Single celled.
•Commonly found in water.
•Huge diversity of form within kingdom.
•Can be **mobile** due to either flagella, cilia, or pseudopods (“false feet”).

Algae

•Algae and seaweed are aquatic organisms
•Autotrophic nutrition.
•May be unicellular or multicellular (with no real tissues),

Examples of both Protoctista groups

Amoeba

Parameci

um

Unicellular alga

Giant kelp: it can grow up to 30 m.

Kingdom Fungi

Key words

- kingdom, (-s)
- phylum, phyla
- class, (-es)
- fungus, fungi
- alga, algae
- symbiosis, symbioses
- parasite, (-s) / host,(-es)

This kingdom is made up by eukaryotic organisms, the vast majority multicellular, but also unicellular, and they do not have tissues. They are all heterotrophic.

The body structure of the fungi is unique. The cells in fungi are grouped together to make up filaments called **hyphae.** The web of hyphae is called a **mycelium.** Fungi reproduce by

spores, which are specialised reproductive cells.

Fungi are a very varied kingdom and they can be classified into three groups: the microscopic fungi (yeasts), the moulds and the mushrooms and toadstools. Fungi usually live in damp places. Some fungi are parasites causing diseases to their host. But others live together, in a symbiotic relationship, like the lichens. Most fungi are decomposers.

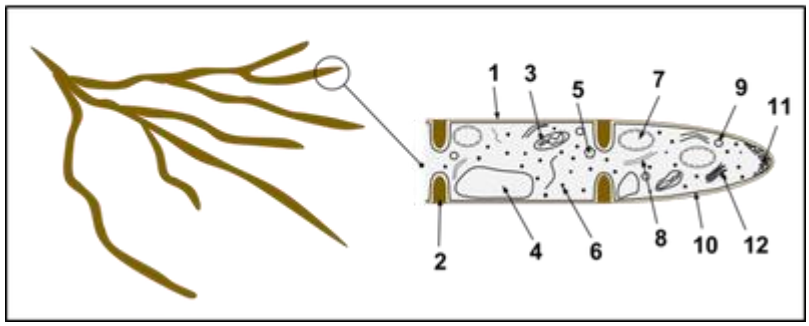
NOTE: A lichen is a symbiotic relationship between a fungi and an algae. A symbiosis is an association between two organisms of different species that benefit each member.

Points to remember:

- Eukaryotes
- Single (yeasts) and multicellular (filamentous - macroscopic)
- Have a mycelium that consists of hyphae.
- Cell walls made of chitin
- Mostly free-living
- Extra-cellular digestion - excreting enzymes and absorbing soluble products.
- Reproduction by release of spores.

Hyphae

Hyphae structure



Filamentous fungi

Baker’s yeast