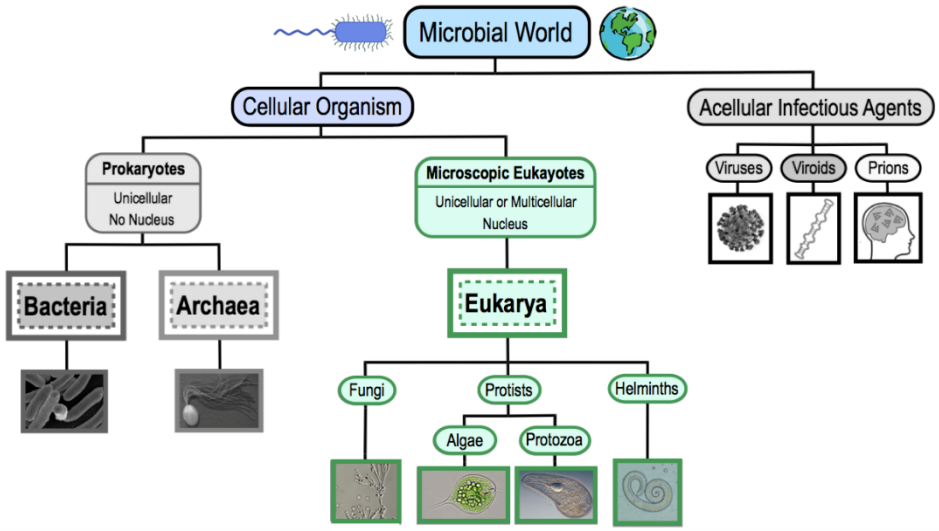
CONCEPT: INTRODUCTION TO EUKARYA

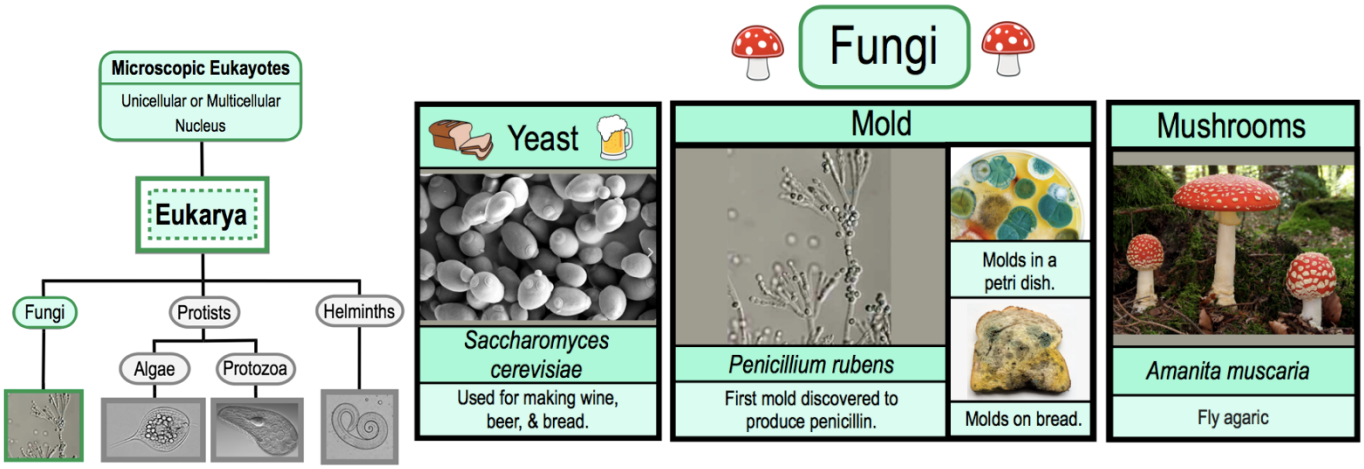
- _____ (singular: *eukaryote*): organisms in one of the three domains of life.
  - □ Cells contain a membrane-bound _____ & can be unicellular or multicellular.
  - □ Includes the _____ eukaryotic kingdoms: plants, animals, fungi, & protists (protists include algae & protozoa).
  - □ Microbiologists tend to study _____ eukaryotes (including fungi, algae, protozoa & helminths).

EXAMPLE: Introduction to Eukarya.



Fungi

- _____ (singular: *fungus*): a diverse group of eukaryotes.
  - □ Ranges from unicellular yeasts to multicellular filamentous molds & mushrooms.
  - □ Unlike plants, fungi do _____ carry out photosynthesis & they have cell walls made of *chitin*.
  - □ Harvest energy from *organic* materials containing carbon & hydrogen.



PRACTICE: Although plants and fungi are very similar, fungi do not have…

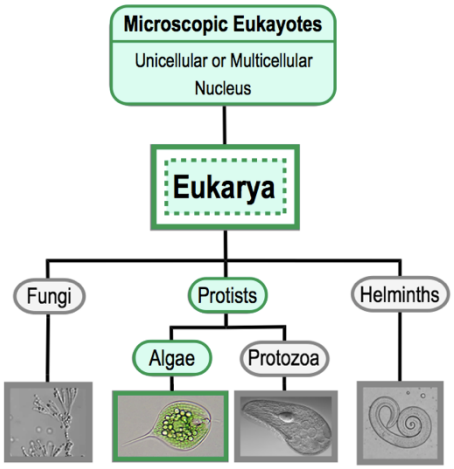
a) Cell walls.
b) The ability to perform photosynthesis.
c) The ability to harvest energy from decaying matter.
d) All of the above.

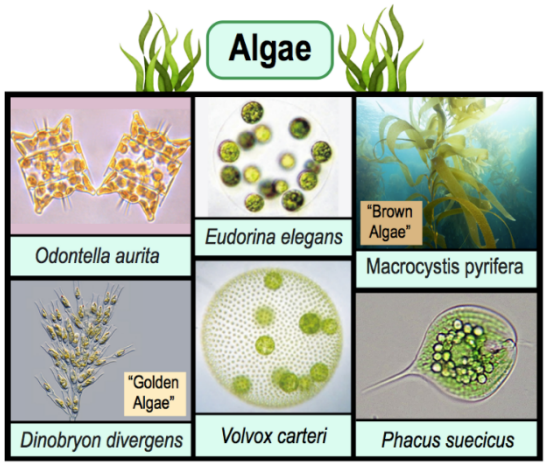
CONCEPT: INTRODUCTION TO EUKARYA

Protists: Algae

- _____ (singular: *alga*): a diverse group of *photosynthetic* eukaryotes ("_____-like protists").
  - □ Can be unicellular or _____-cellular.
  - □ Have a wide variety of shapes, can reproduce *sexually* or *asexually*, & have cell walls made of *cellulose*.
  - □ Usually found near the surface of either salt or fresh water or in moist terrestrial habitats.

EXAMPLE: Introduction to Algae.





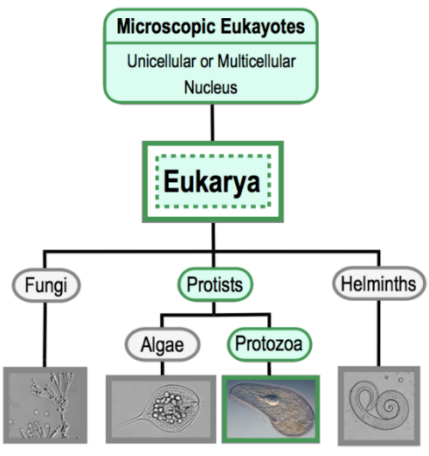
PRACTICE: Plants and algae are very similar, however algae…

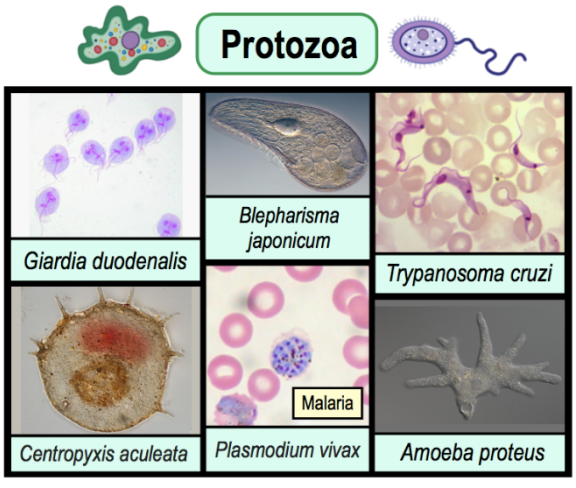
a) Cannot perform photosynthesis.
b) Do not have cell walls made of cellulose.
c) Can only reproduce asexually.
d) Can be either unicellular or multicellular.

Protists: Protozoa

- _____ (singular: *protozoan*): a diverse group of unicellular eukaryotes ("_____-like protists").
  - □ Have a wide variety of shapes, reproduce sexually or asexually, but do _____ have cell walls.
  - □ Most are _____ (can move) & ingest organic materials as a food source.

EXAMPLE: Introduction to Protozoa.



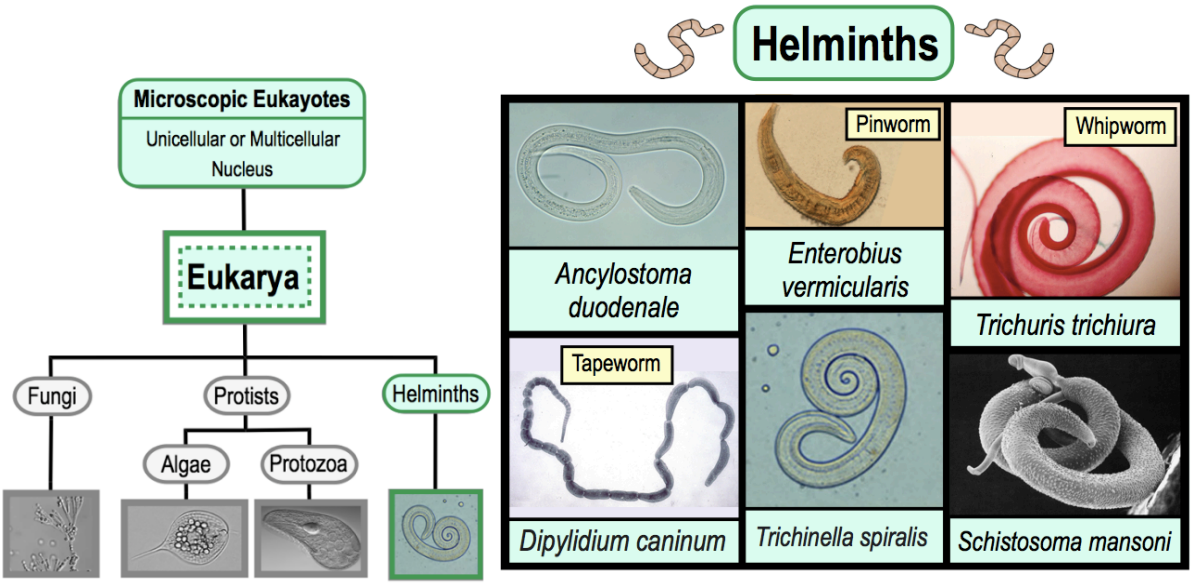


CONCEPT: INTRODUCTION TO EUKARYA

Helminths

- _____: eukaryotic parasitic worms that live at the expense of a host & tend to cause disease.
  - □ Are not technically microorganisms (some can be quite large), but their eggs & larvae are _____.
  - □ Includes flatworms, roundworms & tapeworms.

EXAMPLE: Introduction to Helminths.



PRACTICE: Which of these answers about helminths is true?

a) Helminths are parasitic protozoans that infect many animal species.
b) Helminths are parasitic, microscopic animals that infect many other animals species.
c) Helminths are parasitic animals with microscopic eggs that infect many other animals species.
d) None of the above.

PRACTICE: Why do many microbiologists study helminths if they are technically not microscopic?

a) The eggs and larva of these parasites are microscopic and we require microscopic equipment to see them.
b) They can also cause bacterial infections to occur in humans.
c) The damage they cause to humans is microscopic.
d) Generally, microbiologists do not study these animals because they are not microscopic.