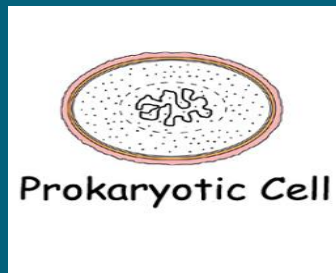
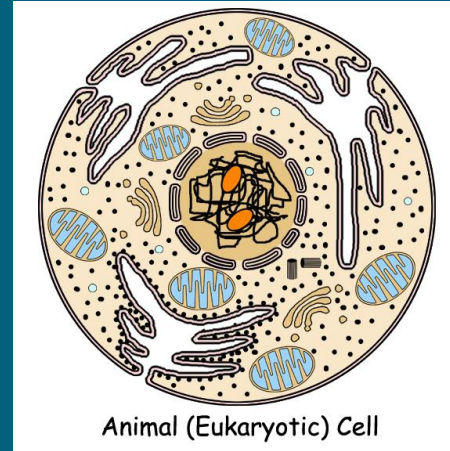


Cells

The functional and structural unit of all living organisms.

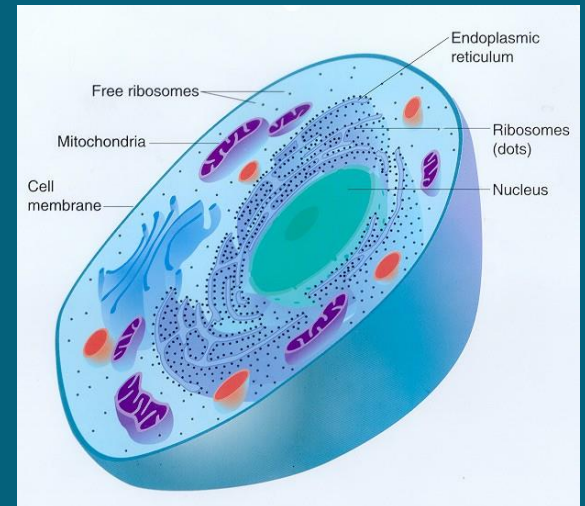
Types of cells

- Eukaryotic Cells
- Prokaryotic Cells



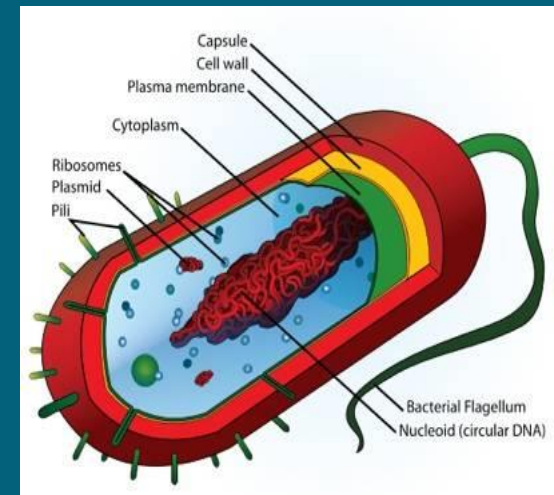
Eukaryotic cells

- Cells which contain a membrane bound nucleus and membrane encased organelles.
- Unicellular (Protists) and Multicellular (Plants, Animals)
- DNA is contained within the nucleus



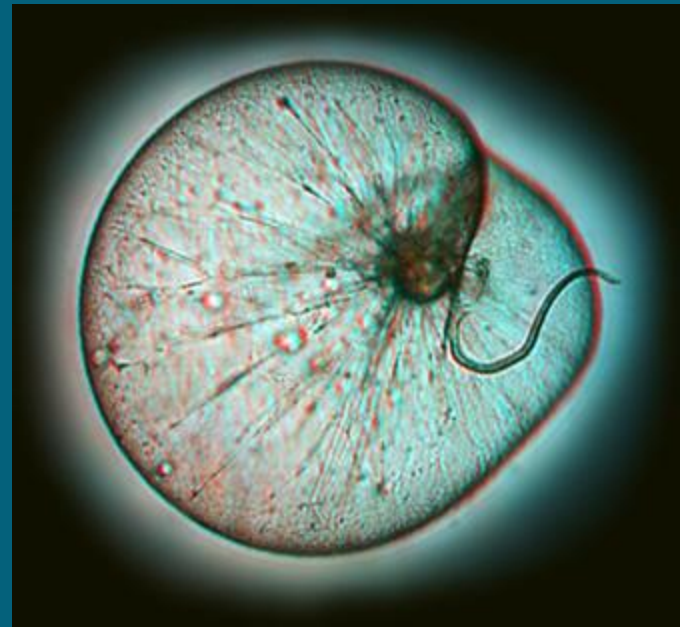
Prokaryotic cells

- Cells which lack a membrane bound nucleus and any membrane encased organelles
- Unicellular
- Have a cell membrane, ribosomes and DNA (genetic material) in the cytoplasm.



Unicellular organisms

- Consist of only one cell
- Examples:
 - Bacteria
 - Protists

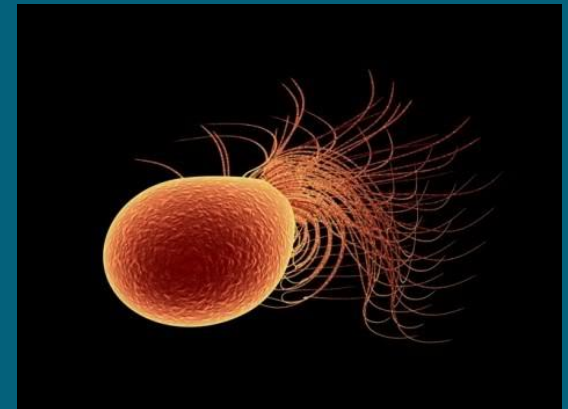
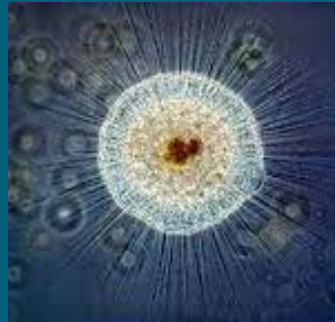


Multicellular organisms

- Consist of more than one cell
- Examples:
 - Fungi
 - Plants
 - Animals



Protists



Protists

- Very diverse, single celled organisms
- Eukaryotic
- We will look at 4 different types:
 1. Euglena
 2. Amoeba
 3. Paramecium
 4. Volvox

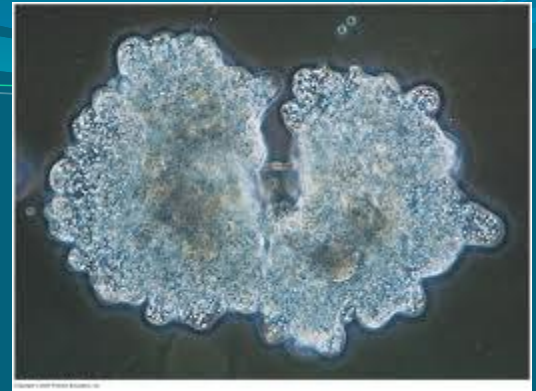


Amoeba

- Unicellular structure
- Found in fresh water (ponds and puddles) and salt water around dead and decaying material
- Move with pseudopodia (false feet): finger-like extensions of cytoplasm.
- Forms protective cyst when environmental conditions are unfavorable.



Amoeba



- Food:
 - Takes in food through phagocytosis or engulfing the food with its pseudopodia.
 - Eats little plants and animals, including other protists. ([amoeba's lunch](#))
- Waste: Contractile Vacuole holds and expels waste through cell membrane
- Reproduction: Asexual (binary fission) – creates exact copy of itself.

Amoeba



Euglena



- Unicellular protists that live in fresh water (quiet ponds or puddles)
- Movement via flagellum – a long whip-like structure that acts like a little motor.
- Have an eyespot helps them sense light.
- Form a protective cyst around them when environmental conditions are unfavorable.



Euglena



- Food
 - Producer: make their own food through photosynthesis.
 - Heterotroph: obtain food by eating other tiny plants and animals.
- Waste - Contractile Vacuole holds excess water and expels it from the cell.
- Reproduction: Asexual (binary fission)

Euglena



Paramecium



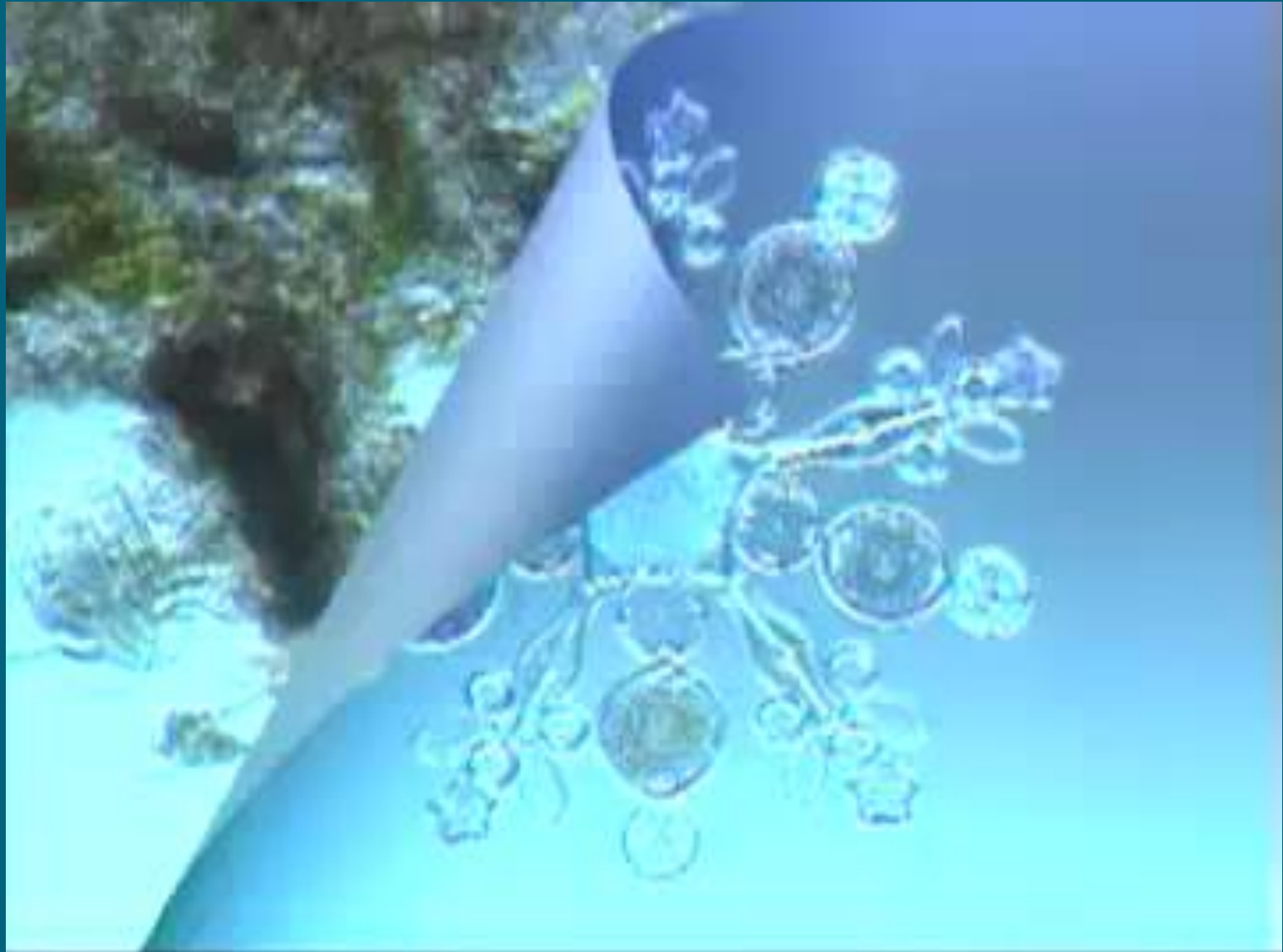
- Found in freshwater and marine environments
- Unicellular organism, but more complex than other single cell organisms
- Movement via cilia: tiny hairs which move back and forth
- Have two nuclei-Macronucleus and Micronucleus
- Avoidance behavior and trichocysts (Spiderman-like skills) for defense. [trichocysts](#)

Paramecium



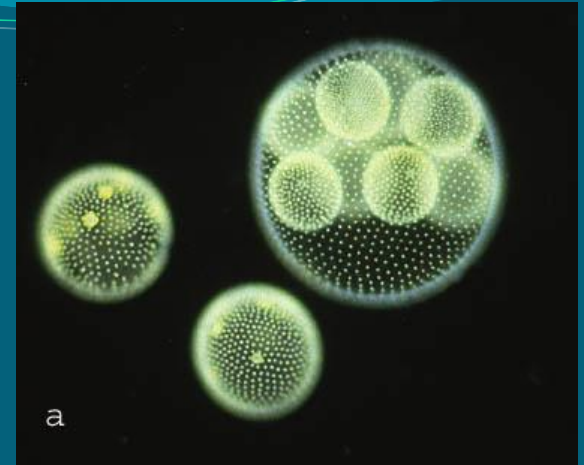
- Energy from Food:
 - Consume smaller protozoans.
 - Cilia are used to sweep food into the oral groove
- Waste:
 - Anal Pore: food waste is removed
 - Contractile Vacuole: water waste
- Reproduction- Binary Fission with occasional conjugation

Paramecium

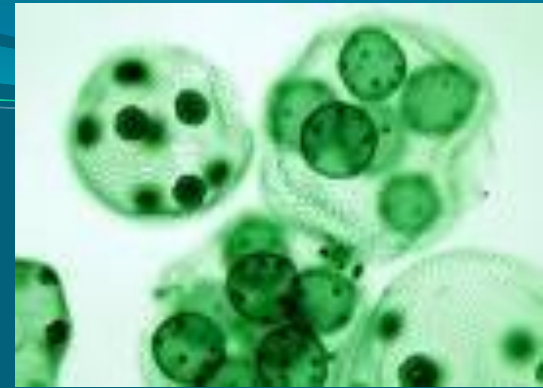


Volvox

- Commonly called algae
- Found in ponds, ditches, and puddles.
- Unicellular organisms that live in a colony of tiny flagellate cells. (More than 50,000)
- Eyespots to help sense light.
- Each volvox has 2 flagella. All individual volvox move them in unison to move the whole colony.

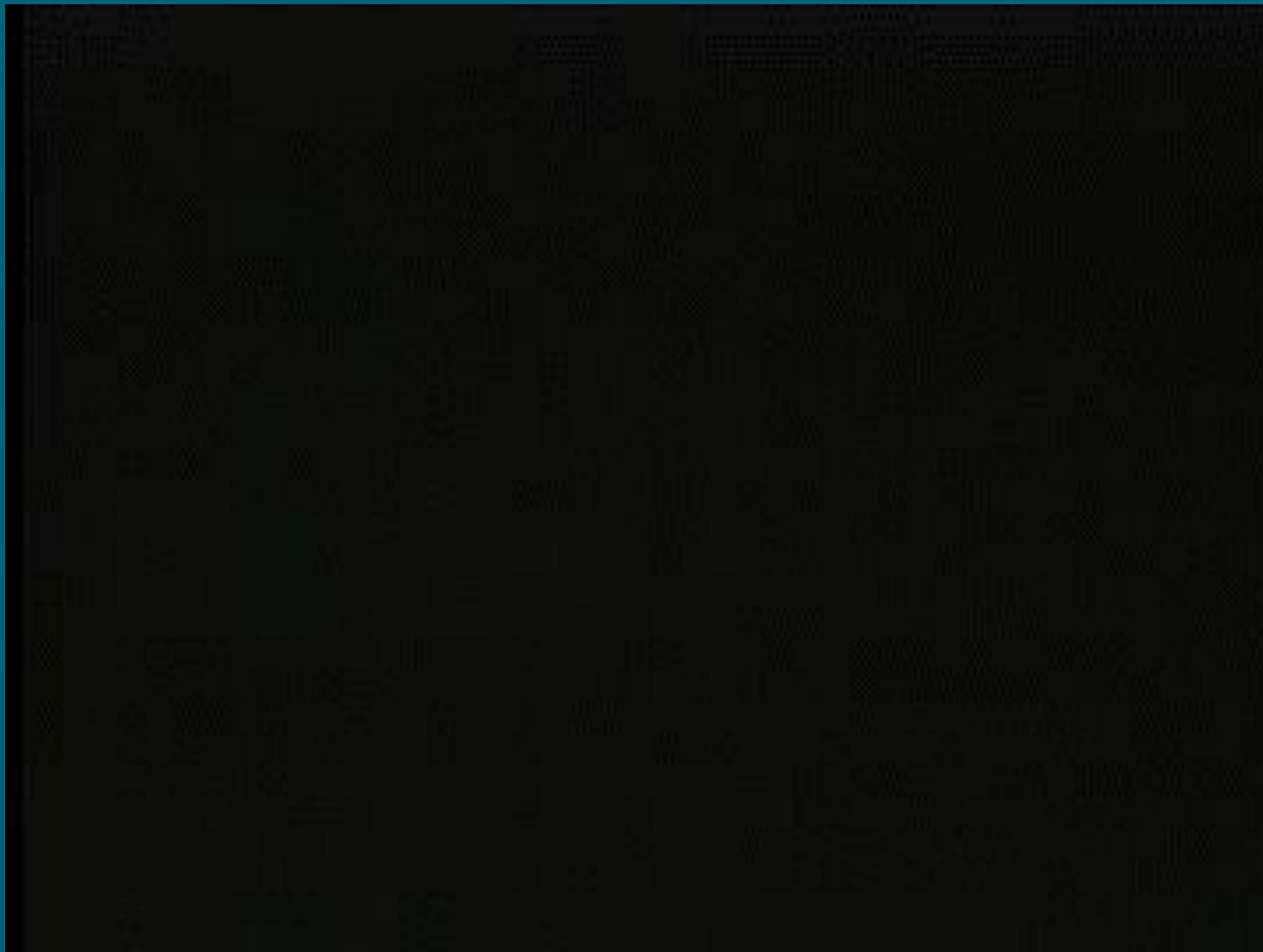


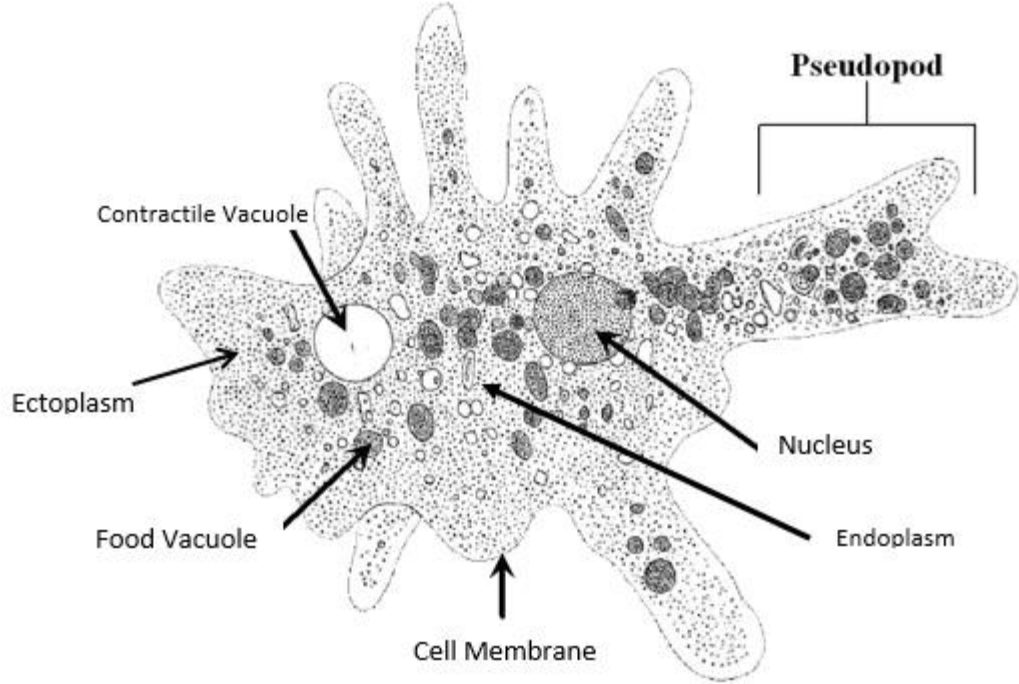
Volvox



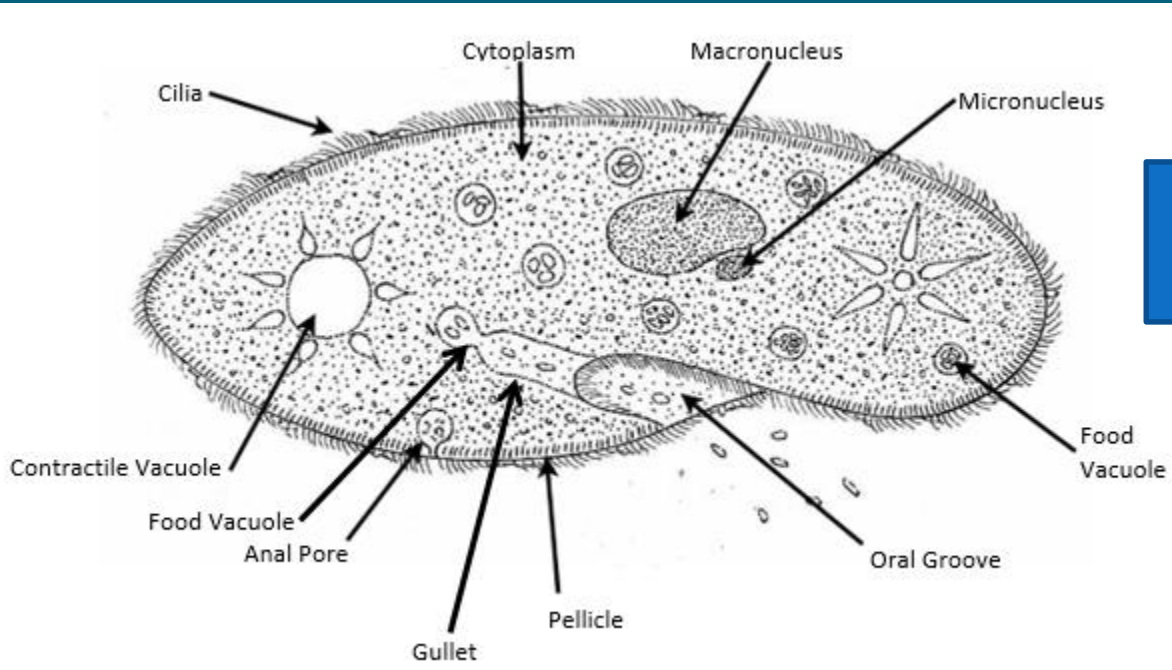
- Food:
 - Produce own food through Photosynthesis
- Waste: Remove carbon dioxide waste through the cell membrane
- Reproduction:
 - Asexual: daughters colonies created

Volvox



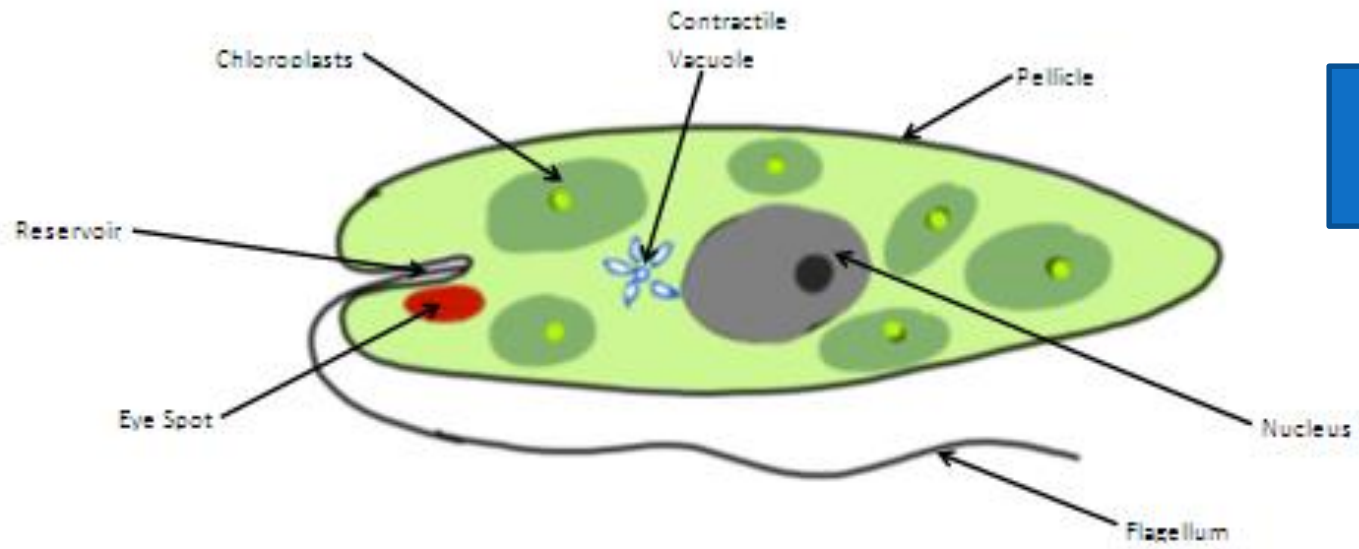


Amoeba

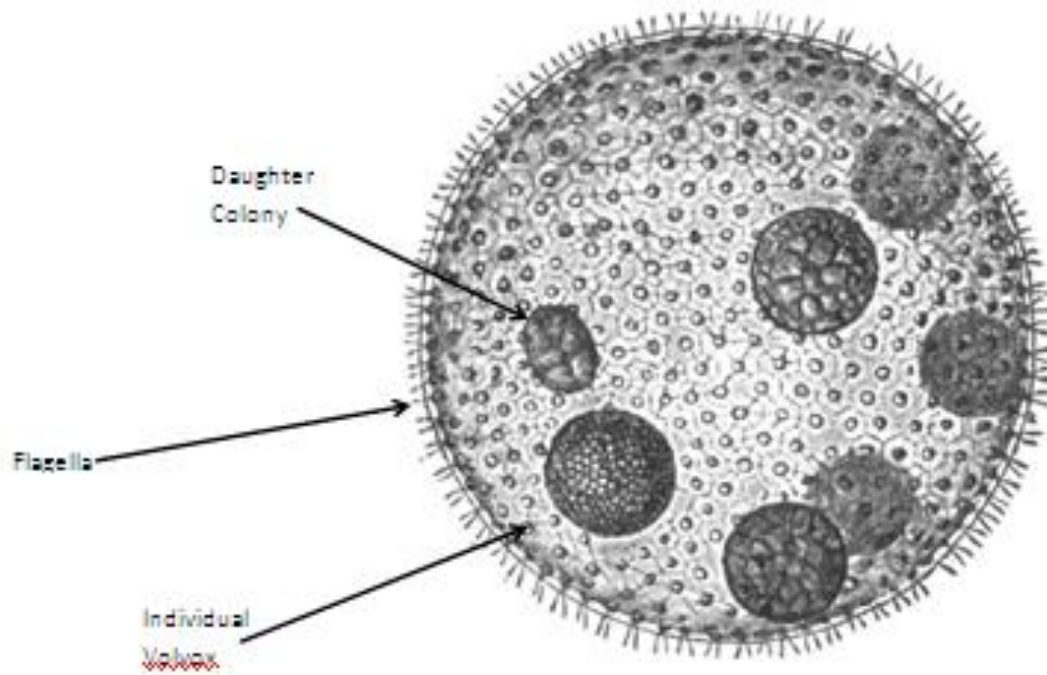


Paramecium

Euglena

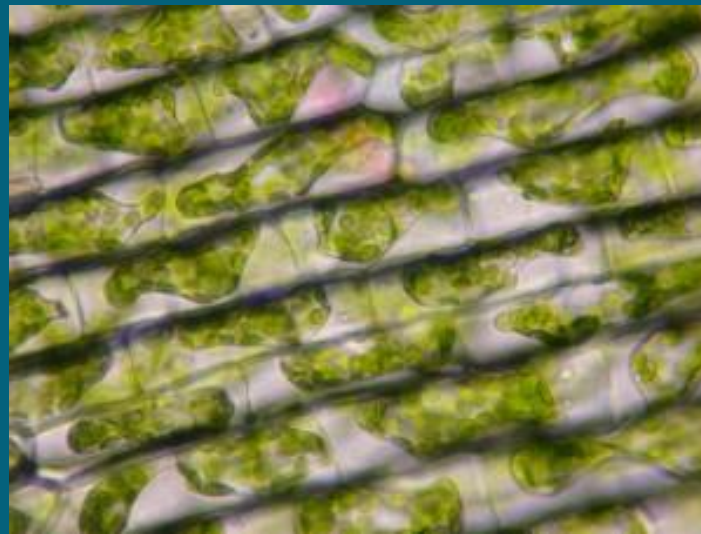
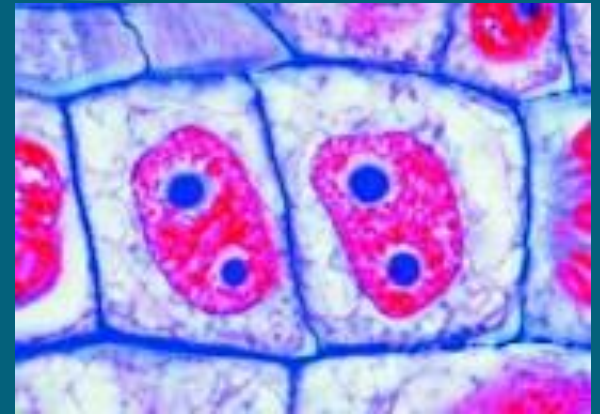


Volvox

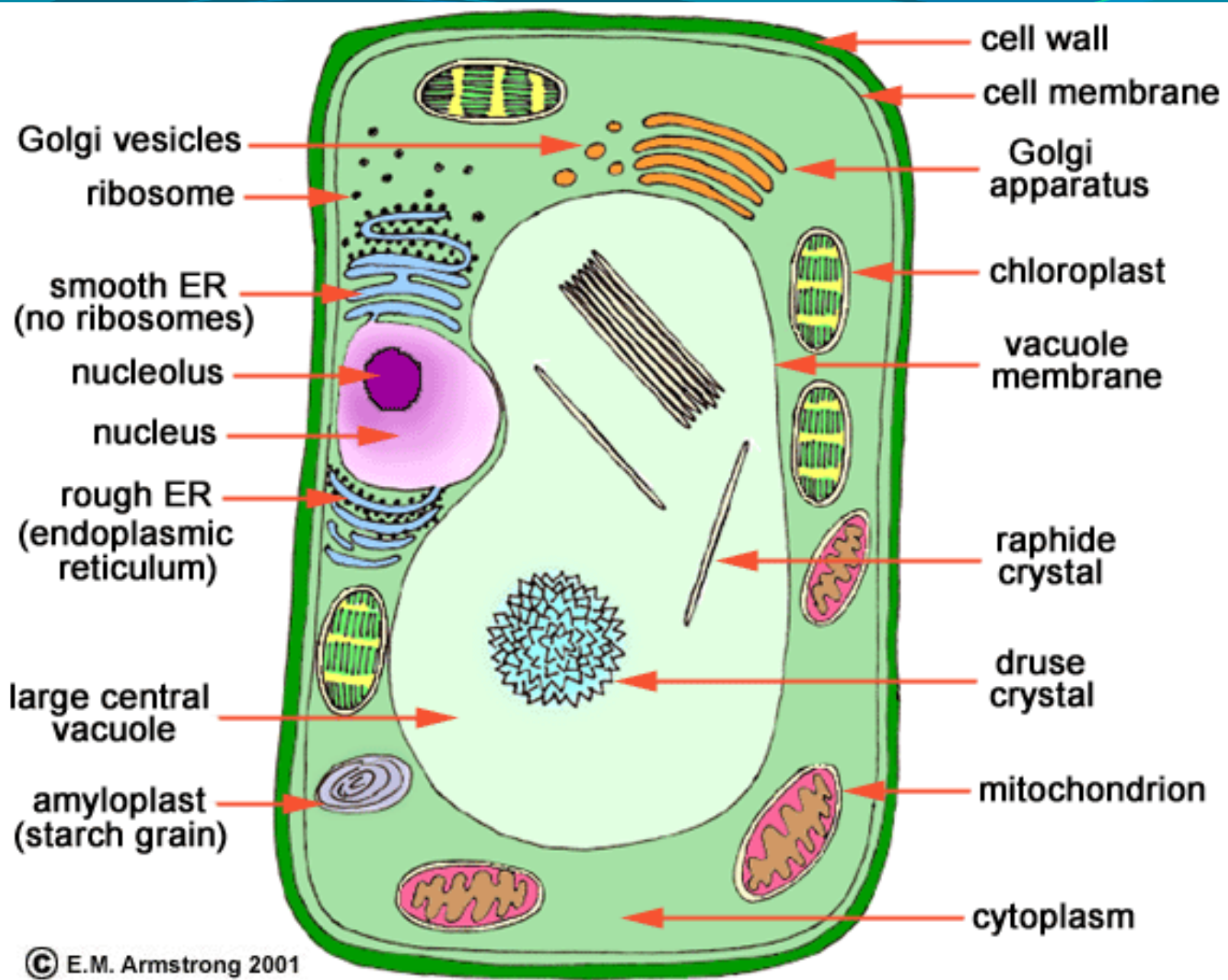


Plant Cells

- Cell wall made of cellulose
- Large central vacuole
- Undergoes photosynthesis
- Contains chloroplasts which contain chlorophyll

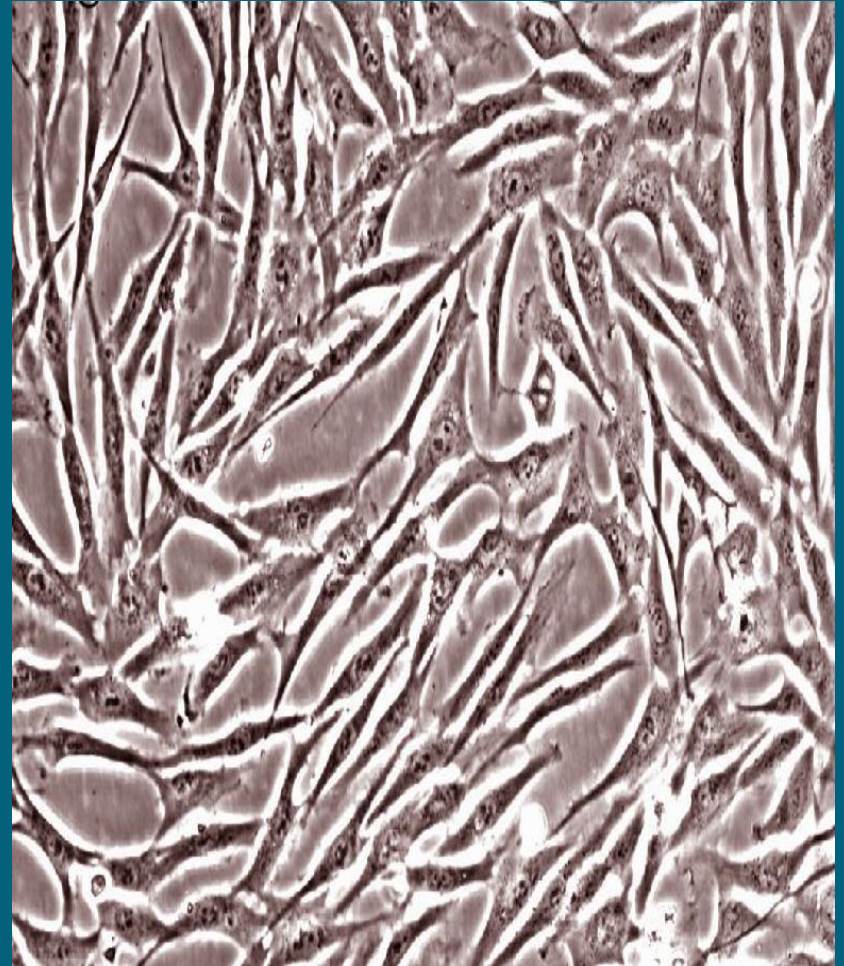


PLANT CELL

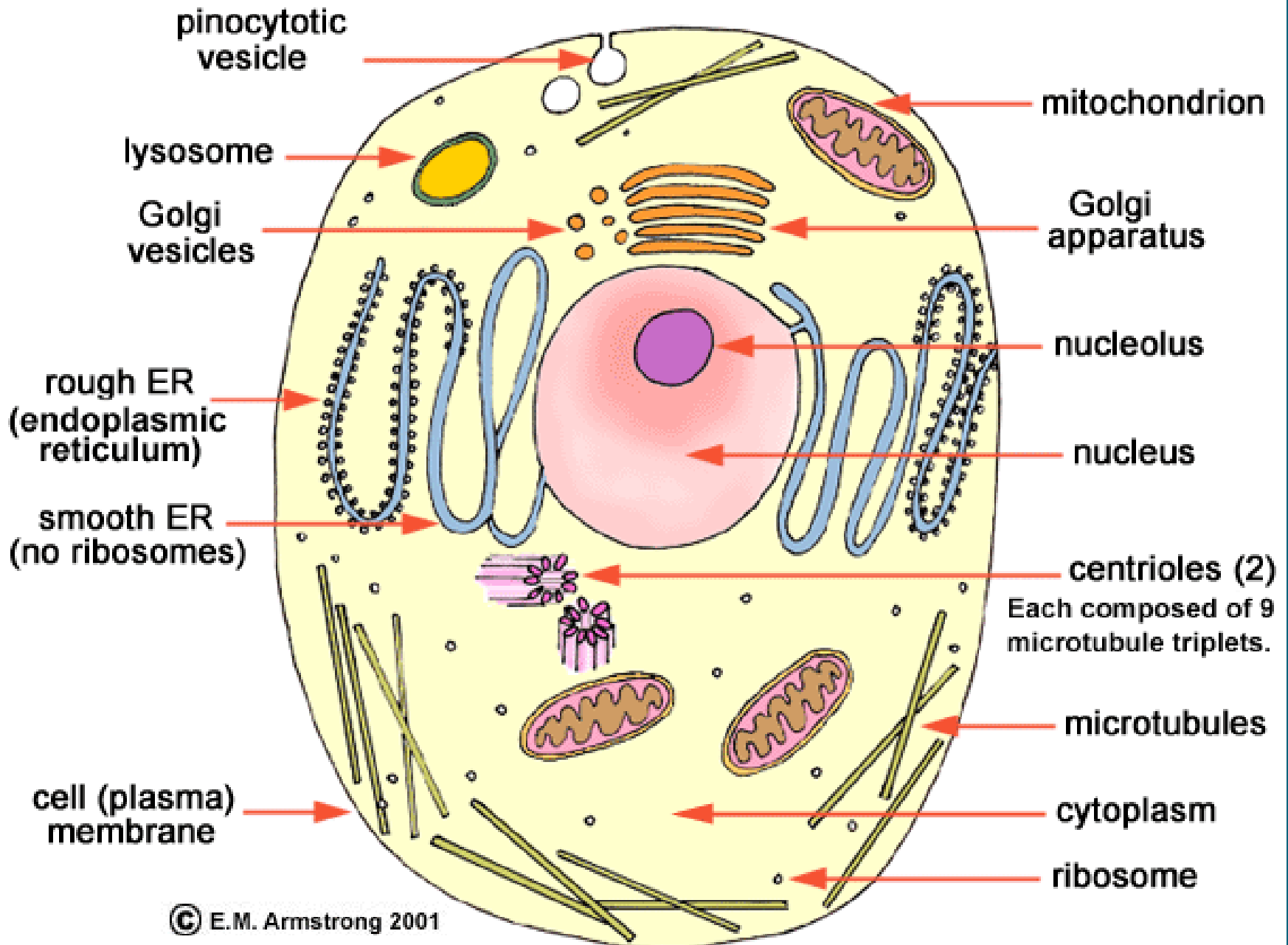


Animal cells

- Unicellular and multicellular
- Lacks a cell wall and chloroplasts
- Small vacuoles
- Appear spherical in shape
- Contains a variety of organelles

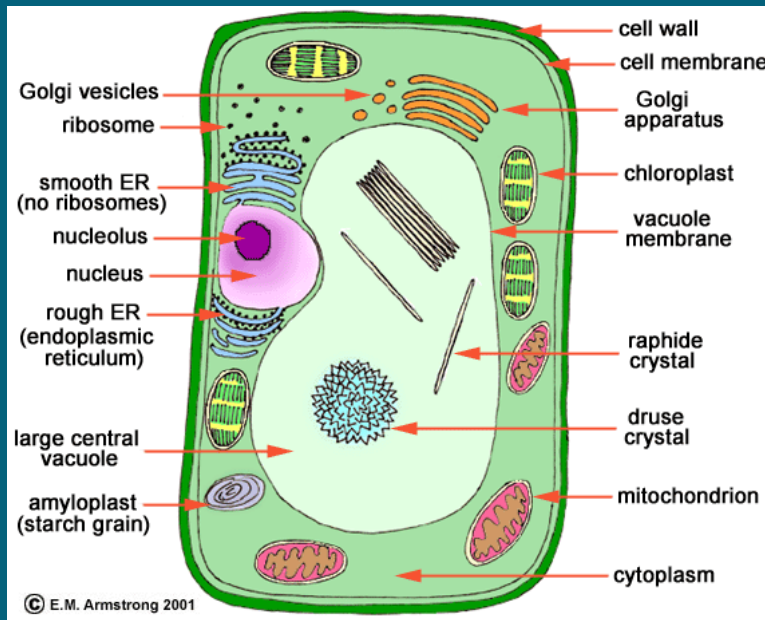


ANIMAL CELL



Do you see any similarities? Differences?

Plant Cell



Animal Cell

