

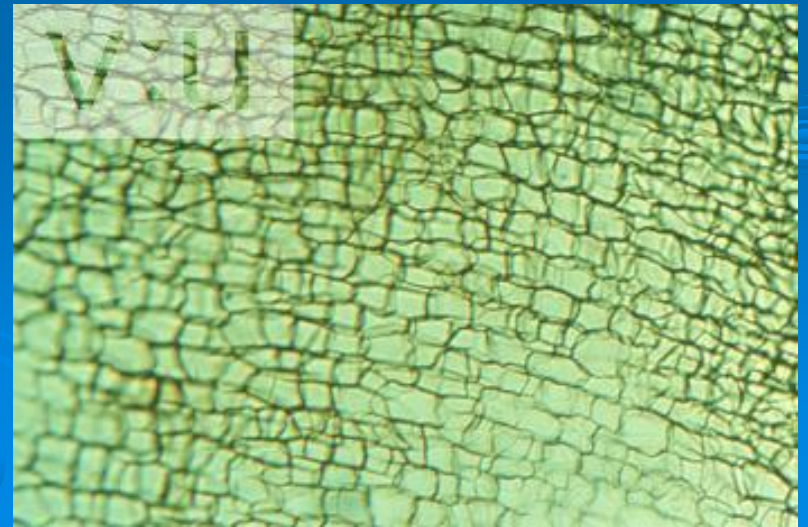
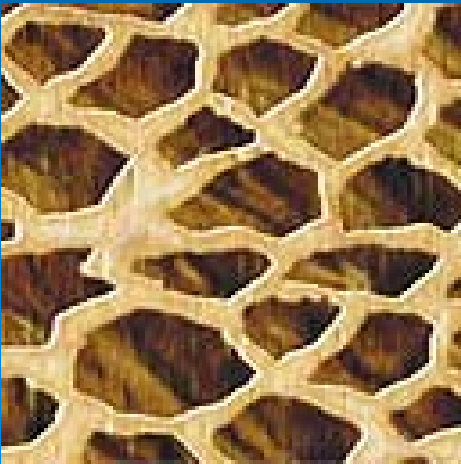
# Cell Theory

## Chapter 7.1



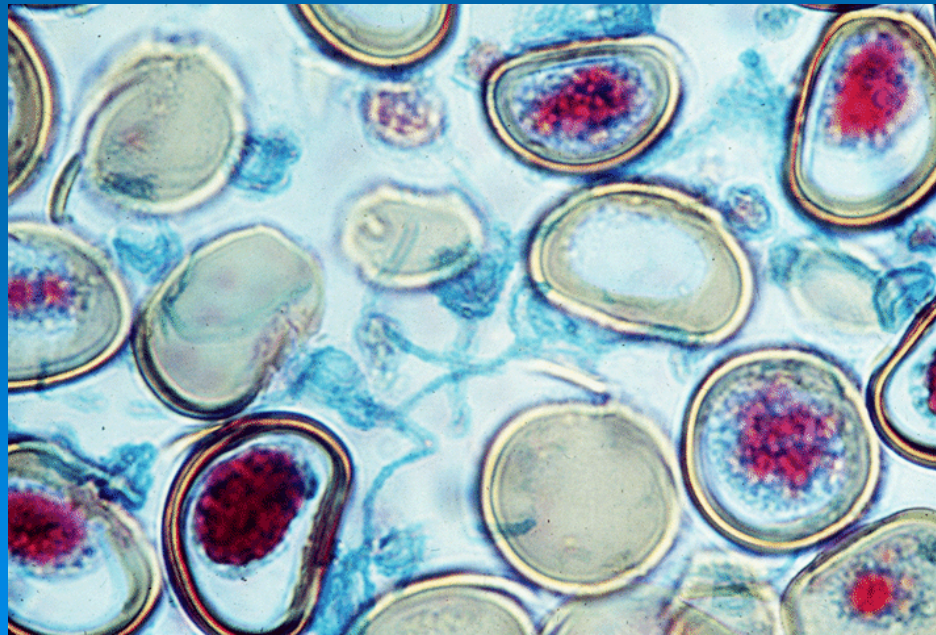
# Early Discoveries

- Anton van Leeuwenhoek
  - Used microscope to discover tiny organisms in pond water
- Robert Hooke
  - Used microscope to look at plant tissue
    - Discovered cells



# Cell Theory

- All living things are composed of cells.
- Cells are the basic units of structure and function in living things.
- New cells are produced from existing cells.



# Cell Basics

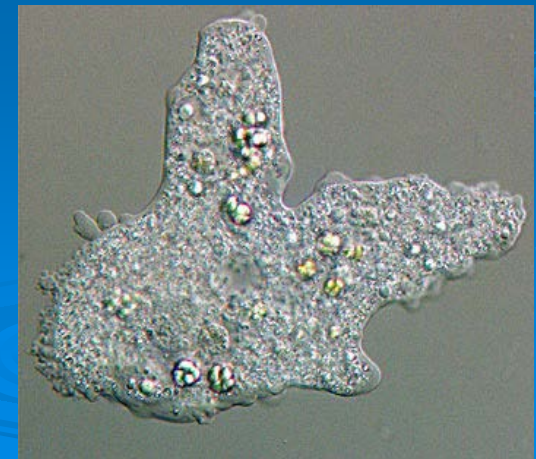
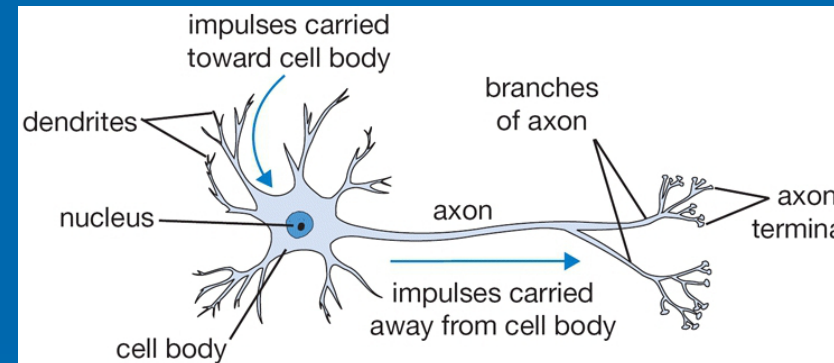
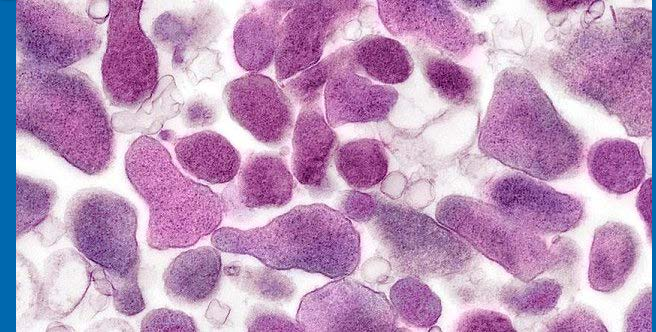
➤ Smallest bacteria – 0.2 micrometers

- 1 million micrometers = 1 meter

➤ Longest cell, neuron

- 1 meter long

➤ Largest free living cell, giant amoeba – 1000 micrometers



# Cell Basics

- Largest cell – yolk of an ostrich egg

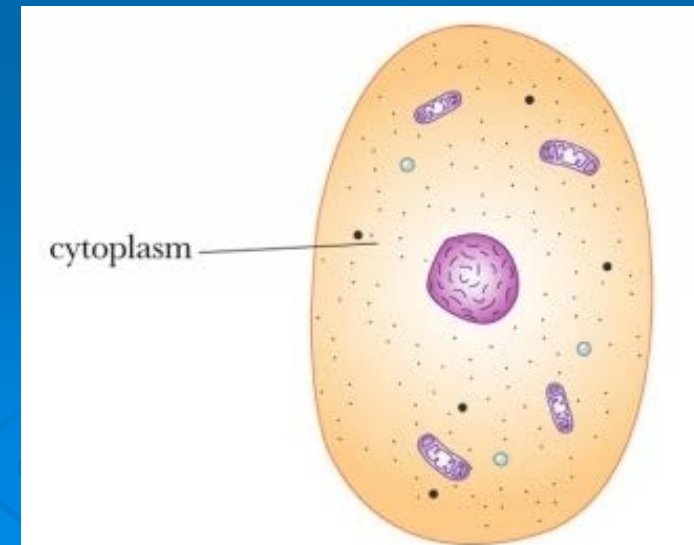
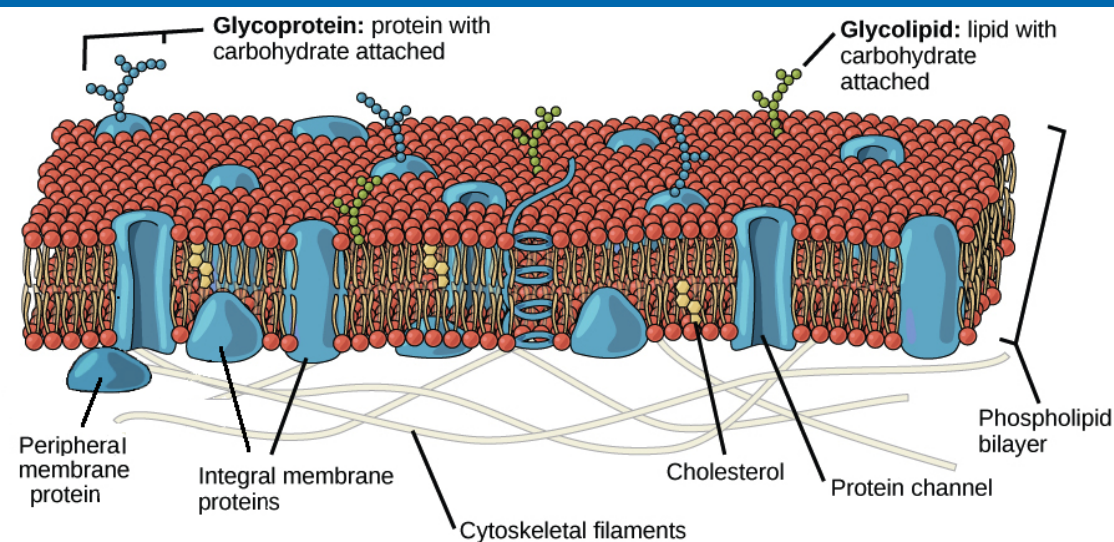


# Cell Basics

## ➤ Cell membrane

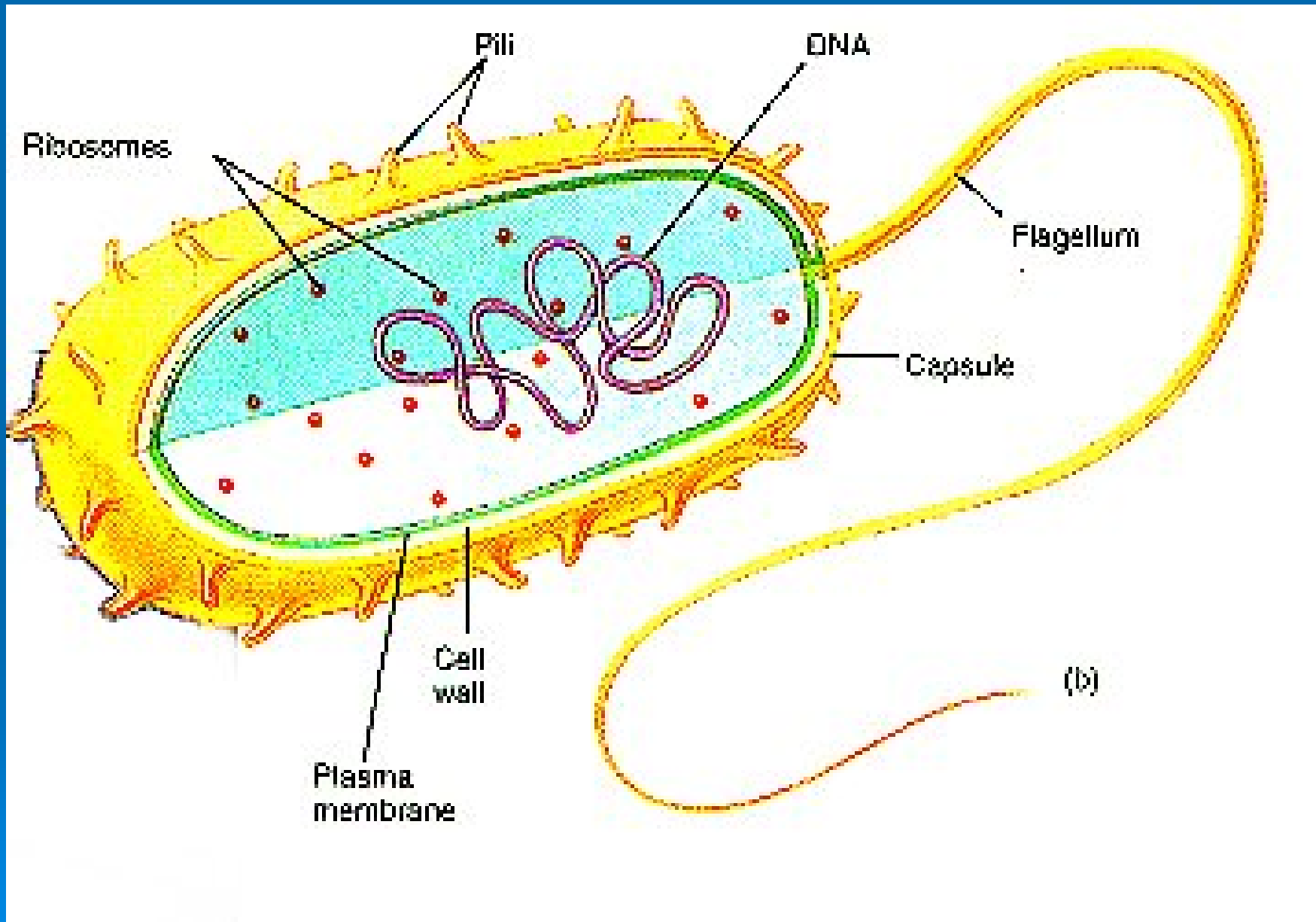
- Semi-permeable – allows certain molecules to pass through
- Made of lipid

## ➤ Cytoplasm – The material inside the cell membrane



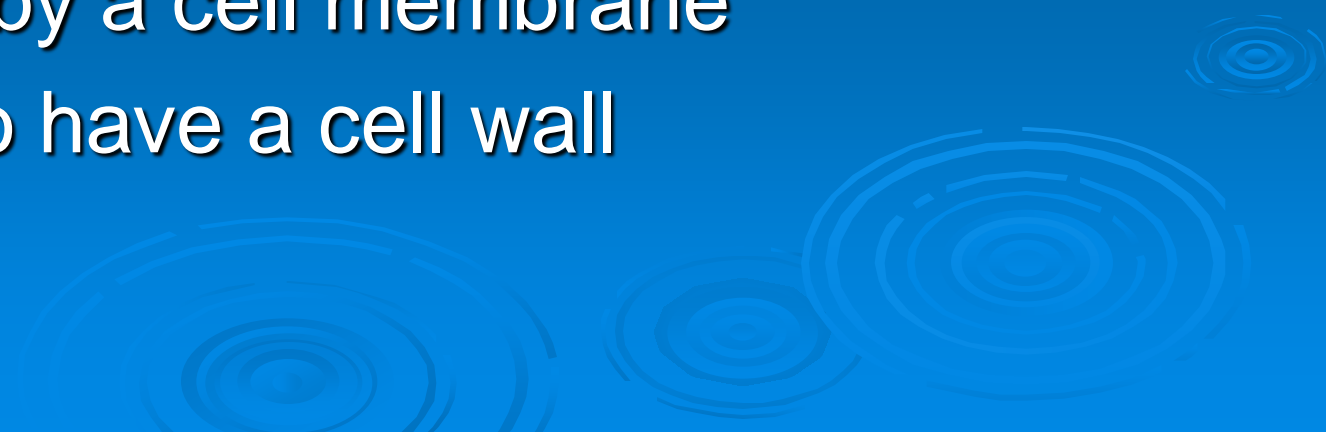
# Prokaryotic Cell

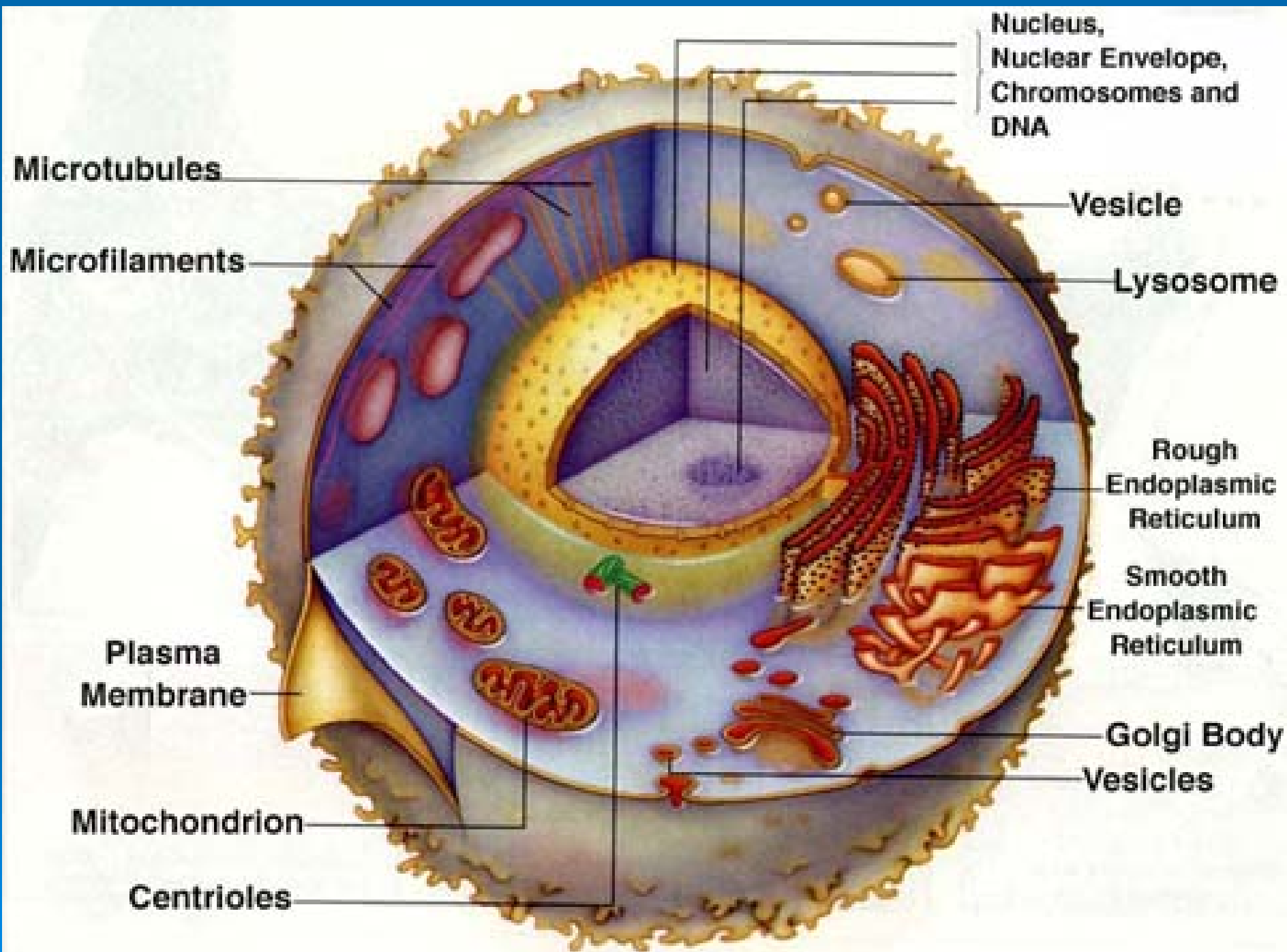
- Simplest cells
- Bacteria are prokaryotes
- No nucleus
  - DNA floats freely in cytoplasm
- Cell enclosed by
  - Cell Membrane – allows particles to pass in and out
  - Cell wall – provides shape and protection





# Eukaryotic Cells

- YOU are a eukaryote!
  - All plants, animals, fungi
  - Nucleus – contains DNA
  - Organelles – specialized structures that carry out important functions in the cell
  - Enclosed by a cell membrane
  - Some also have a cell wall
- 



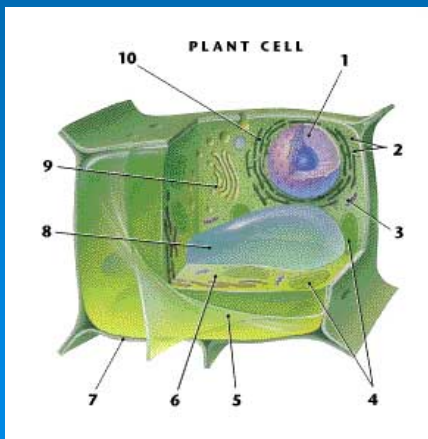
# Prokaryotes vs. Eukaryotes

Bacteria	Plant, Animal, Fungi, Protists
always unicellular	often multicellular
no nucleus	Has nucleus
DNA is circular, without proteins	DNA is in chromosomes, with proteins
No membrane-bound organelles	membrane-bound organelles
binary fission	by mitosis or meiosis
reproduction is always asexual	reproduction is asexual or sexual

# Plant Cells vs Animal Cells

## Plant cells

- Cell Wall for support and protection
- Cell membrane
- Chloroplasts for photosynthesis
- Large vacuoles



## Animal Cells

- No cell wall
- Cell membrane
- No chloroplasts
- Small vacuoles

