

Due Today:

Introduction to Microscopes lab

You can put your Unit 1 materials
back in the boxes

10B- Due Tomorrow:

Conferences form (quiz grade!)

Table of Contents:

Unit 2 Cells

Chapter 7- Cellular Structure and Function

- Ch. 7 Pre-Test

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- Ch 7 Science Notebook

- Intro to Microscopes (lab)

- 7.1 notes (cell discovery and theory)

<https://mrsshior.weebly.com/biology>

7.1 Cell Discovery and Cell Theory

If you don't have your pages out yet,
you need to get them out!

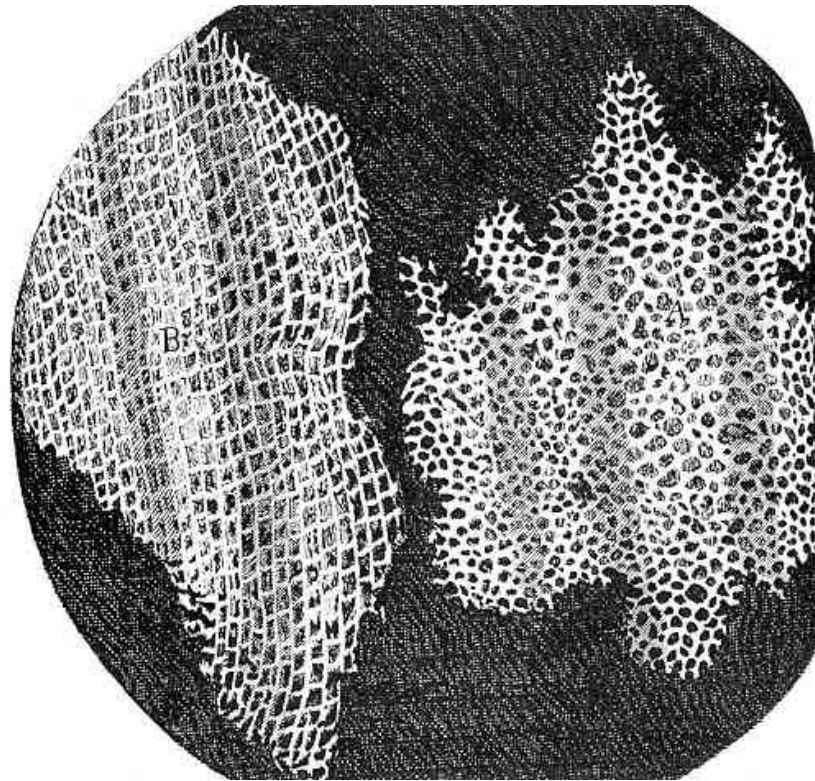
Cell Discovery

For centuries scientists had no idea that the human body consists of trillions of cells.

Important names in microscope history

Robert Hooke (1665)

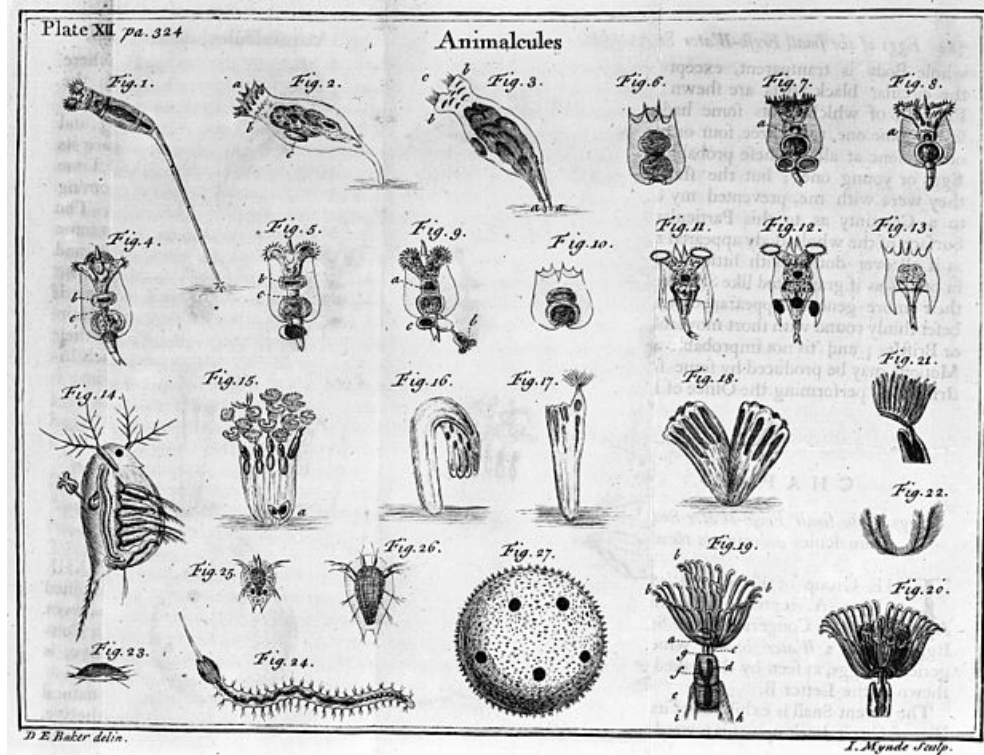
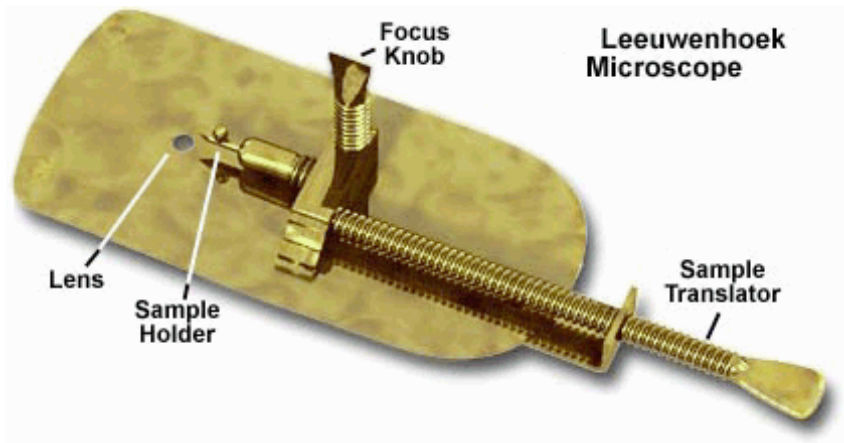
observes cork- names them “cells”



Important names in microscope history

Anton van Leeuwenhoek (1683)

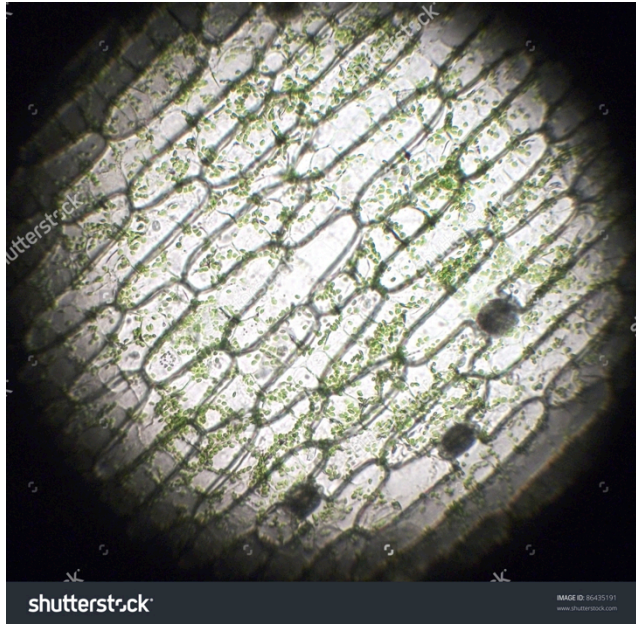
discovered single celled organisms in pond water and tooth scrapings



The cell theory

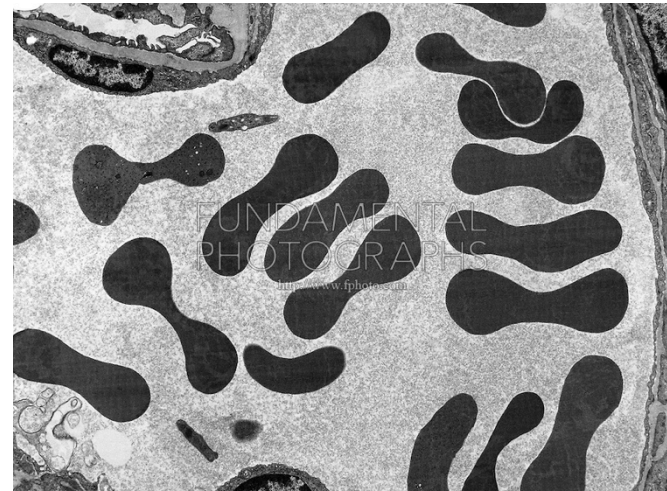
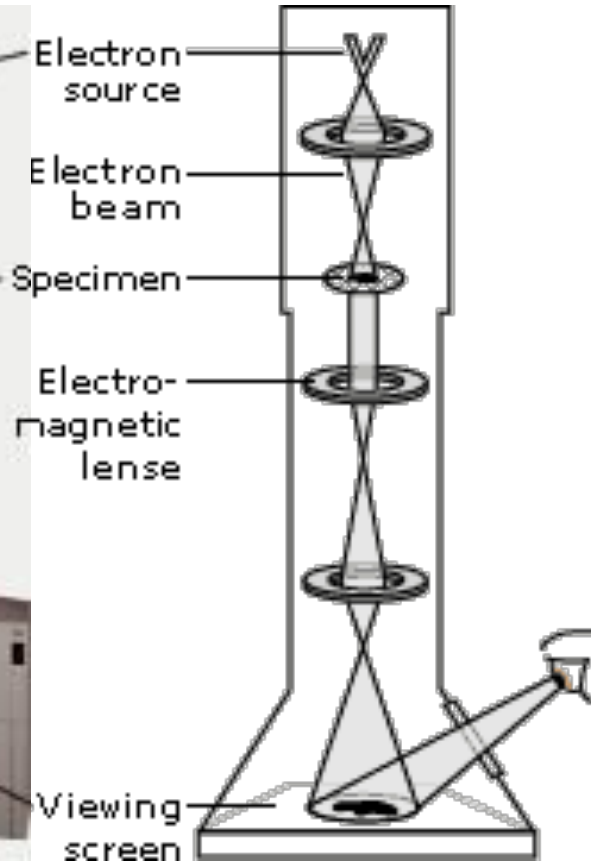
1. All living organisms are made of one or more cells.
2. Cells are the basic unit of structure and function of all living organisms.
3. Cells arise only from previously existing cells, with cells passing their genetic material on to their daughter cells.

Compound Light Microscopes	Transmission Electron Microscope (TEM)	Scanning Electron Microscope (SEM)	Scanning tunneling electron microscope (STM)
<p>Uses glass lenses and visible light</p> <p>magnifies up to 1000x actual size</p> <p>Living or nonliving samples</p>	<p>Uses a beam of electrons through a thin sample</p> <p>magnifies up to 500,000x</p> <p>specimen must be dead, sliced very thin</p>	<p>Uses electrons bounced back from the surface</p> <p>3D images</p> <p>Only nonliving samples</p>	<p>uses electrons from a charged probe</p> <p>3D images of atoms</p> <p>Can be used with live specimens</p>

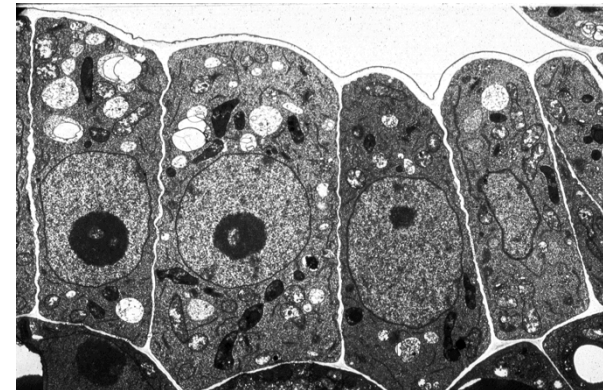
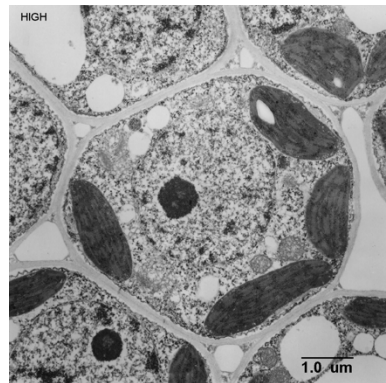


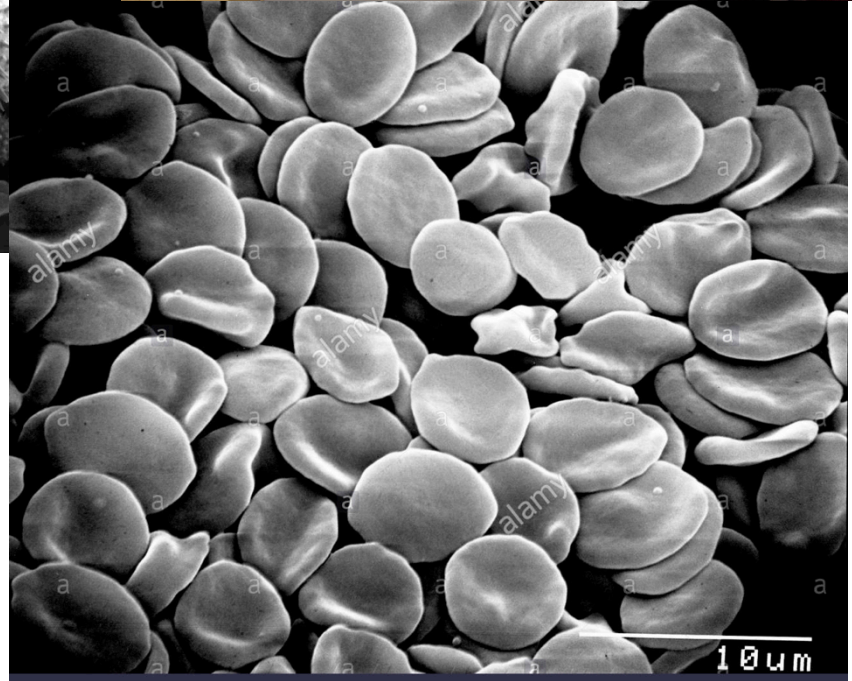
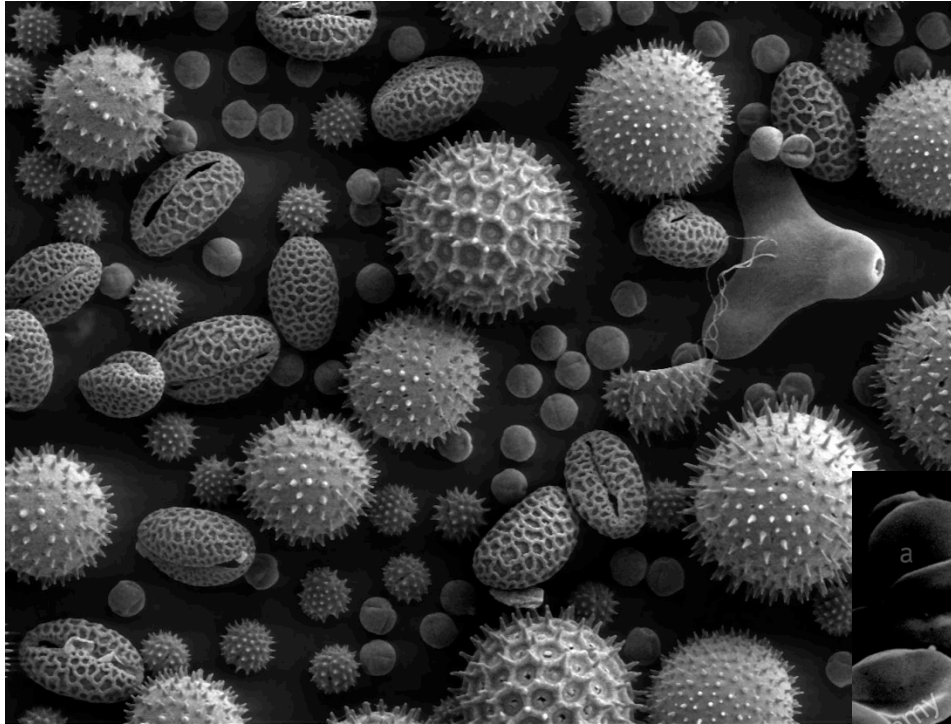
Compound Light Microscope



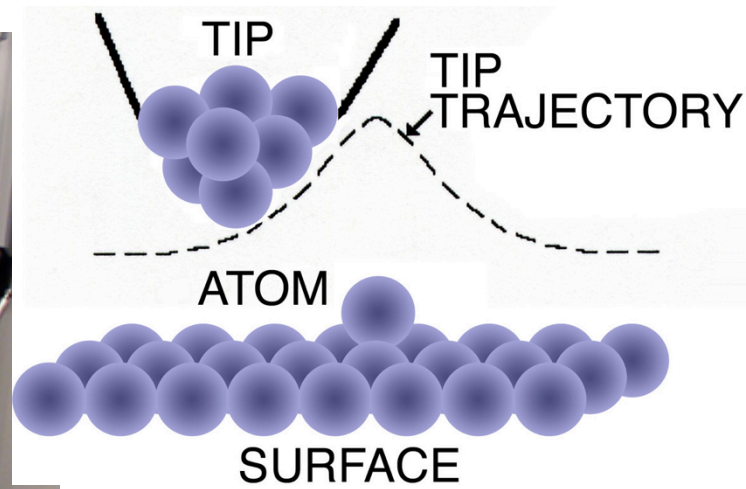
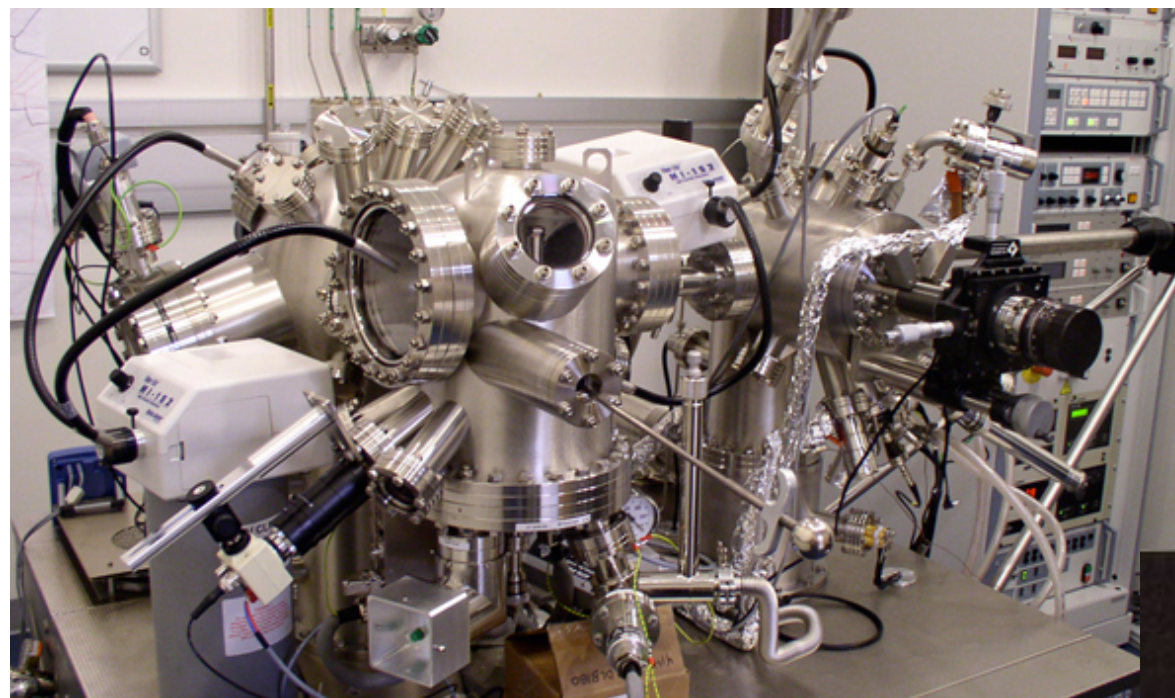


TEM

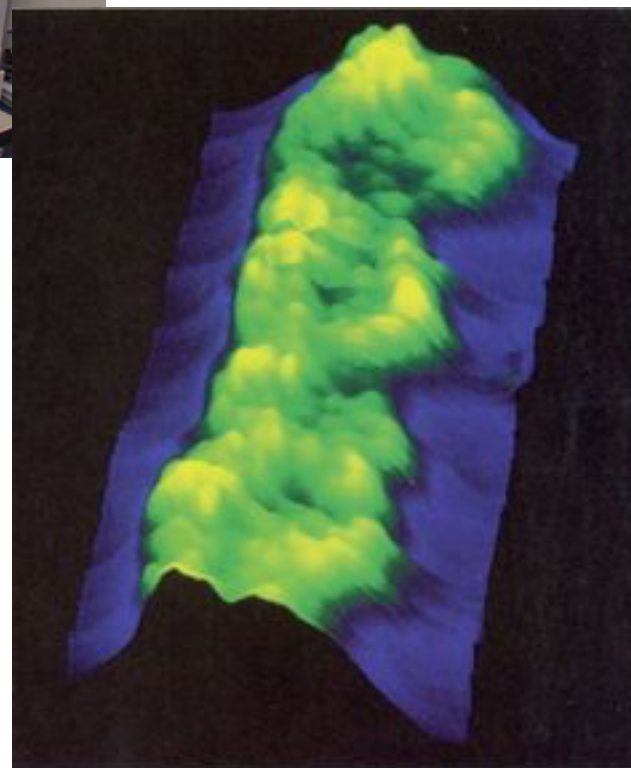
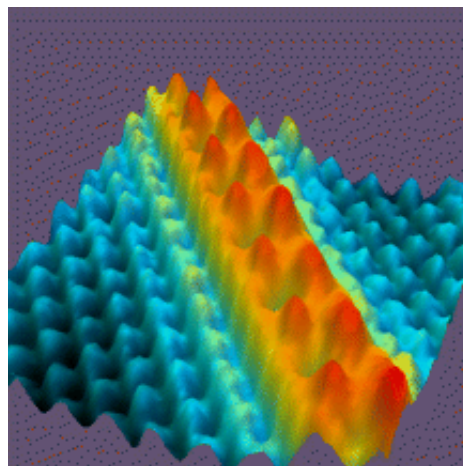




SEM



STM



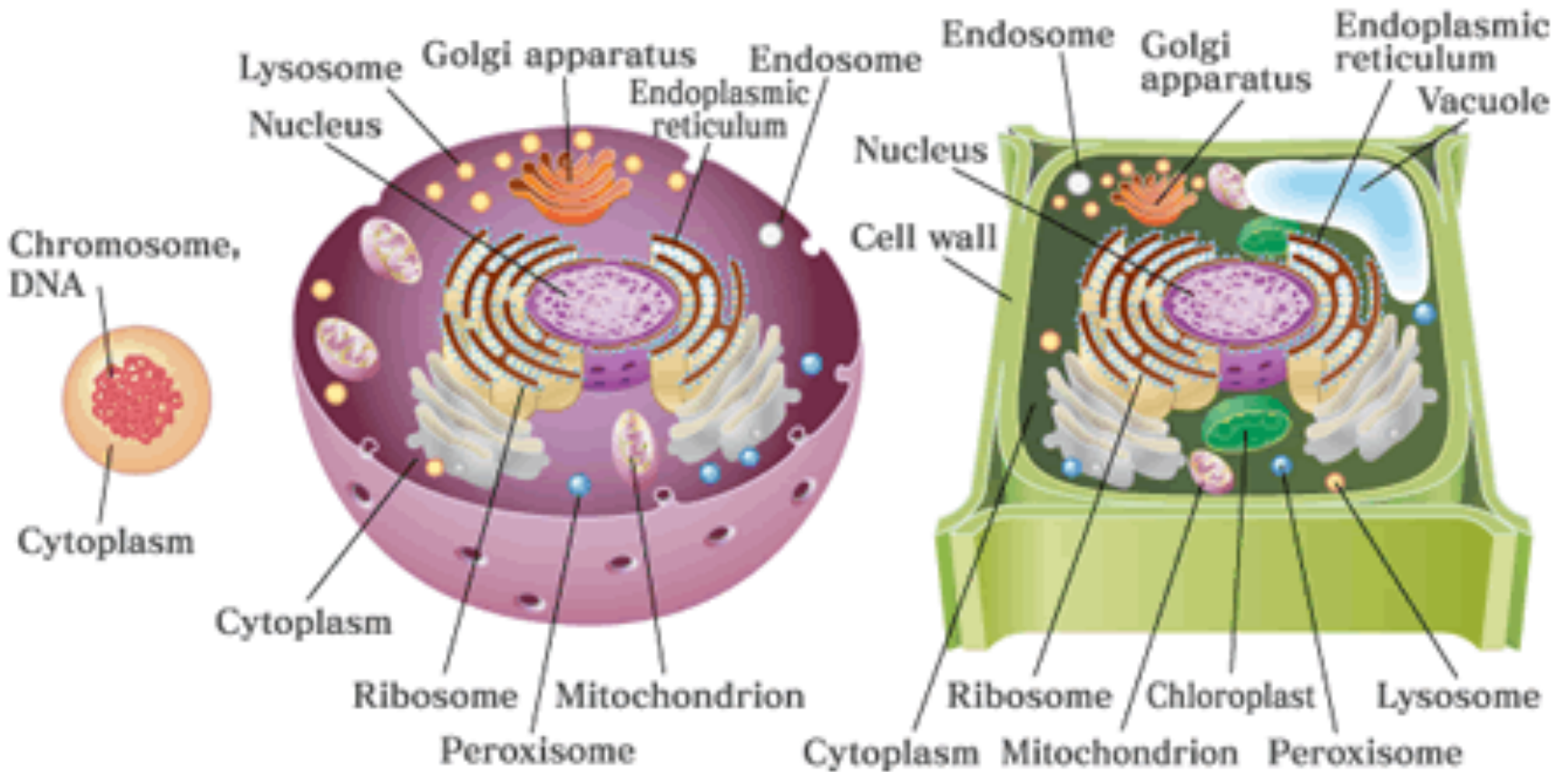
dna

Basic Cell Types

Bacterium

Animal cell

Plant cell



All cells have a plasma membrane.

- A **plasma membrane** is a boundary that controls what enters and leaves the cell.
- Most cells contain genetic material.
- Most cells break down molecules to generate energy.

Prokaryotic cells

No nucleus (but yes DNA)

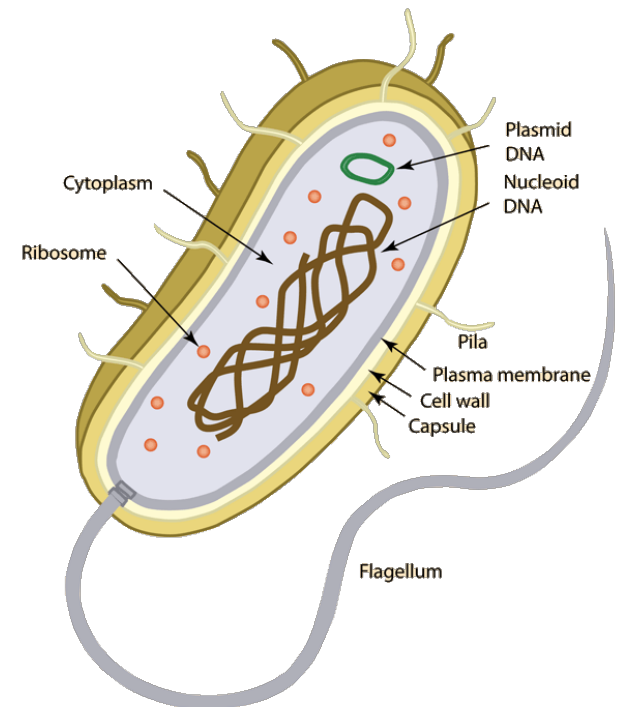
No membrane-bound organelles.

Smaller and **simpler** than eukaryotes

Unicellular organisms

Probably similar to first organisms on earth

Ex: Bacteria

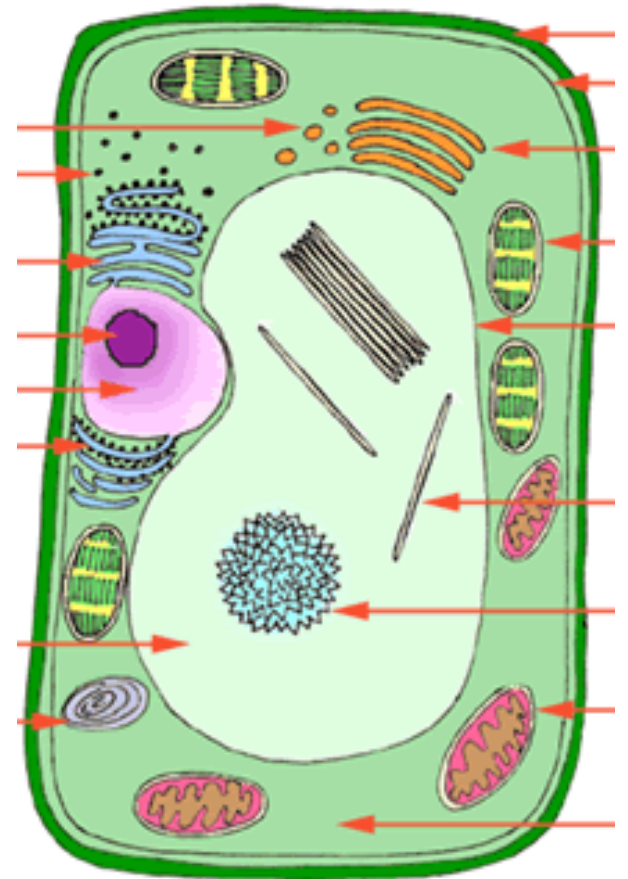


Eukaryotic cells

Contain a **nucleus** (holds the DNA) and other **organelles** (specialized structures)

Larger and more complex
ex: plant and animal cells

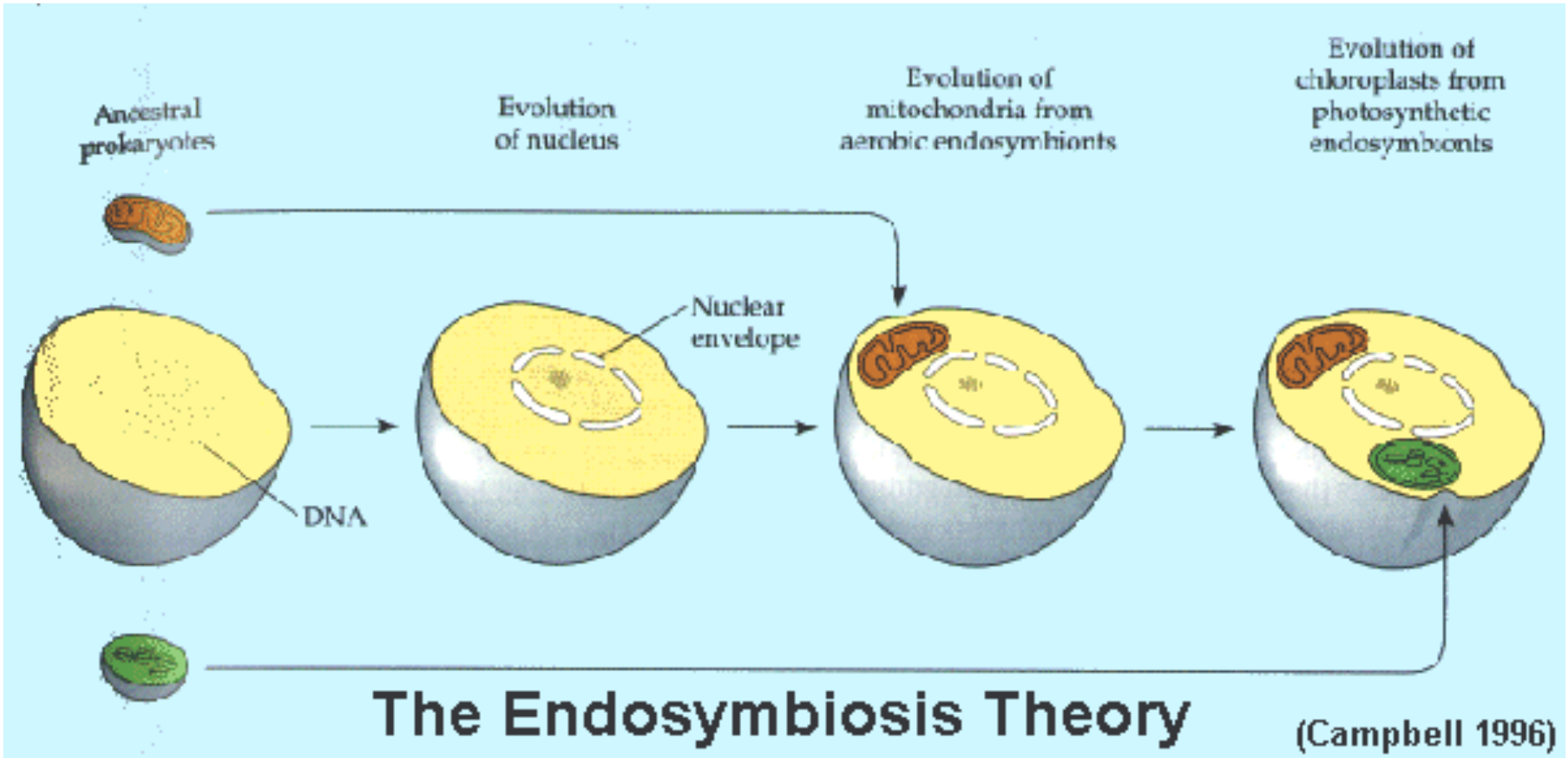
Can be unicellular or multicellular



Origin of cell diversity

Eukaryotic cells may have evolved from prokaryotic cells.

- The **endosymbiont theory** proposes that a symbiotic relationship formed between two prokaryotic cells, one of which lived inside the other.



<https://youtu.be/FGnS-Xk0ZqU>

- Eventually the symbiotic relationship led to the two cells becoming one.
- Because eukaryotic cells are larger and more complex, they developed specific functions.
- These specific functions led to cell diversity, and thus organismal diversity.

Homework: 7.1 Worksheets