

CELL STRUCTURE AND FUNCTION

CHAPTER 7

SECTION 7.1: LIFE IS CELLULAR ☺

Discovery of the Cell

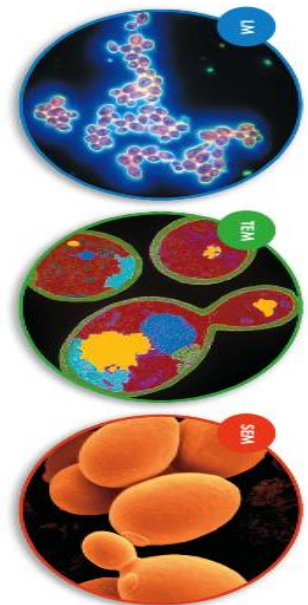
- ✓ Early Microscopes:
 - Robert Hooke
 - Anton Van Leeuwenhoek
- ✓ The Cell Theory
 - Define:
 - What is a cell?

THE 3 POINTS OF THE CELL THEORY

- 1.
- 2.
- 3.

Exploring the Cell

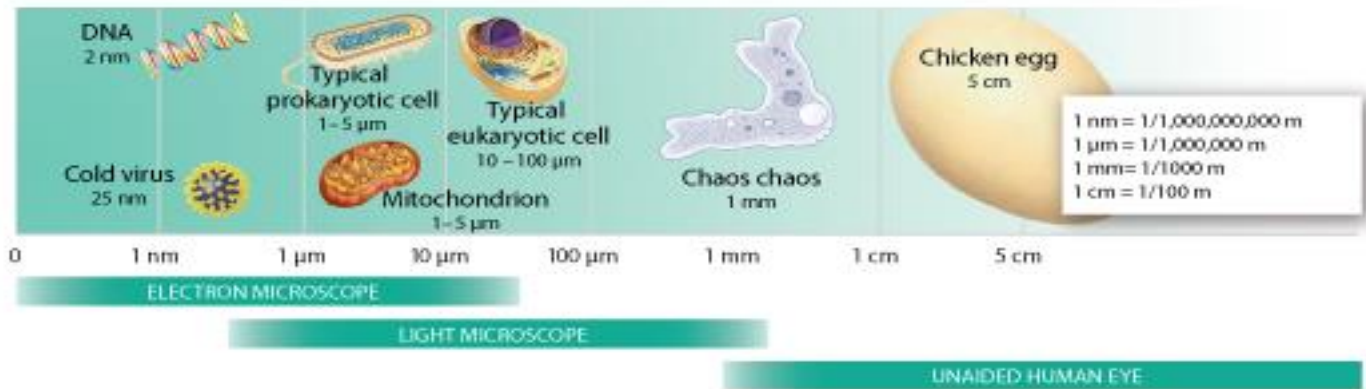
- ✓ Light Microscopes & Cell Stains
 - Compound Light Microscopes
 - The first lens:
 - The second Lens:
 - Limitations of magnification (why?)
 - Purpose of cell stains:
 - How do stains differ
- ✓ Electron Microscopes



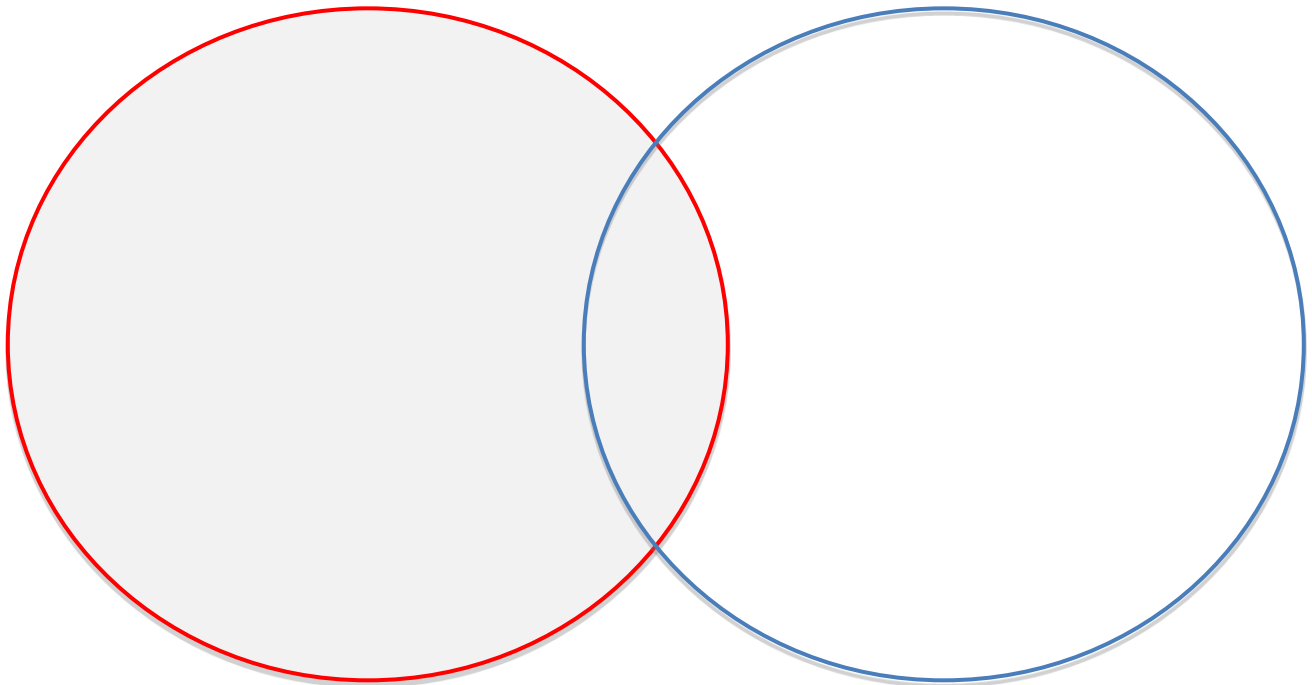
Electron Scanning Microscopes

Transmission Electron Microscopes

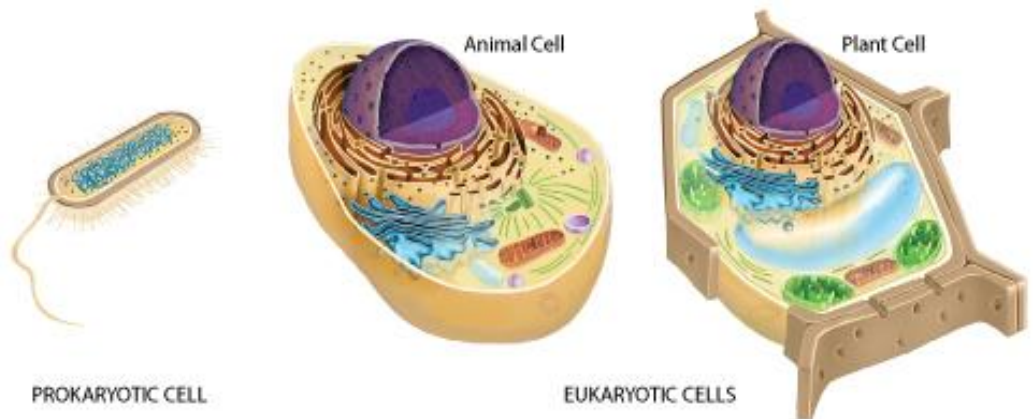
Prokaryotes & Eukaryotes



- Fill in the Venn Diagram below to distinguish prokaryotic cells from eukaryotic cells.



[Mr. D to the Rescue!!](#)



[Lost all Control, on a](#)



[Crash Course!!](#)

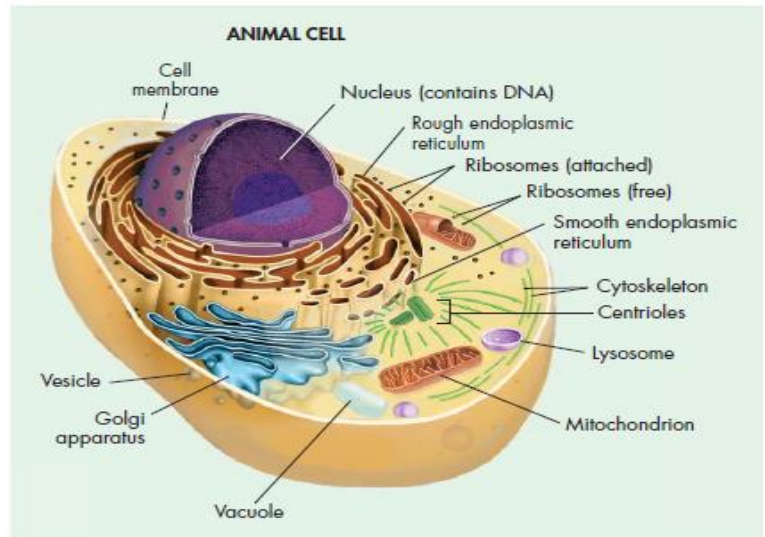
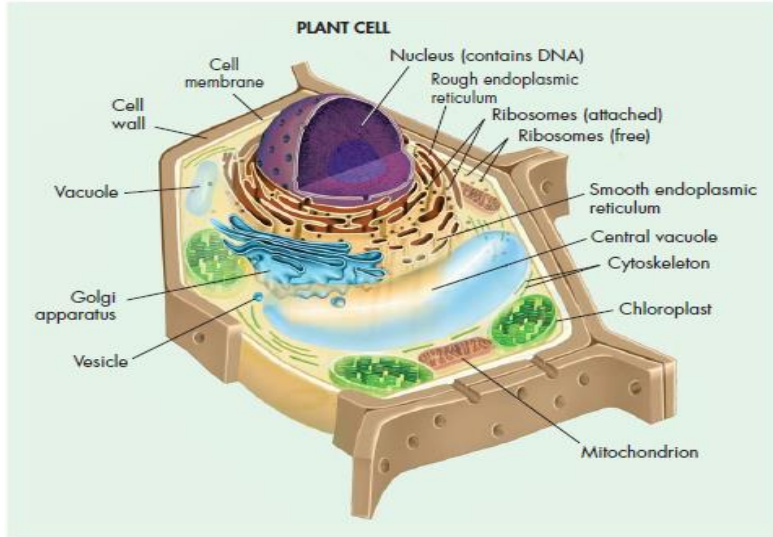
[Bozeman Bashes Biology](#)



SECTION 7.2 CELL STRUCTURE

Cell Organization (Eukaryotes)

- The cell is highly specialized and organized. Like any complex machine or factory the cell has separate areas or compartments that each work to accomplish larger tasks.
- These compartments are called Organelles.
- Using the book (pages 196-207) and the information provided below, complete the assignment in the grey box below.



	Structure	Function	Prokaryote	Eukaryote:	
				Animal	Plant
Cellular Control Center	Nucleus	Contains DNA	Prokaryote DNA is found in cytoplasm.	✓	✓
Organelles That Store, Clean-Up, and Support	Vacuoles and vesicles	Store materials		✓	✓
	Lysosomes	Break down and recycle macromolecules		✓	✓ (rare)
	Cytoskeleton	Maintains cell shape; moves cell parts; helps cells move	Prokaryotic cells have protein filaments similar to actin and tubulin.	✓	✓
	Centrioles	Organize cell division		✓	
Organelles That Build Proteins	Ribosomes	Synthesize proteins	✓	✓	✓
	Endoplasmic reticulum	Assembles proteins and lipids		✓	✓
	Golgi apparatus	Modifies, sorts, and packages proteins and lipids for storage or transport out of the cell		✓	✓
Organelles That Capture and Release Energy	Chloroplasts	Convert solar energy to chemical energy stored in food	In some prokaryotic cells, photosynthesis occurs in association with internal photosynthetic membranes.		✓
	Mitochondria	Convert chemical energy in food to usable compounds	Prokaryotes carry out these reactions in the cytoplasm rather than in specialized organelles.	✓	✓
Cellular Boundaries	Cell wall	Shapes, supports, and protects the cell	✓		✓
	Cell membrane	Regulates materials entering and leaving cell; protects and supports cell	✓	✓	✓

For Each Organelle:

- State its function of the organelle, and why it is vital to the cell.
- Give a brief description of what the organelle looks like as it appears in diagrams.
- List any cellular or life processes that the organelle is involved in.
- State the cell type in which the organelle exists. (Plant cell, Animal cell, both)
- Include a “best of your ability” sketch of the organelle.

Format:

- You have creative control over the format of this task. You may simply complete this in outline form, or perhaps be more creative and make each organelle a page in a magazine or written as a short story, or a FLIP BOOK!! Whatever you choose, be sure to meet each of the above listed criteria.