**AP Biology Unit 2 – The Cell**

# Standards:

2B1: Cell Membranes are selectively permeable due to their structures.

2B2: Growth and dynamic homeostasis are maintained by the constant movement of molecules across membranes.

2B3: Eukaryotic cells maintain internal membranes that partition the cell into specialized regions.

4A3: The structure and function of subcellular components, and their interactions, provide essential cellular processes.

1B1: Organisms share many conserved core processes and features that evolved and are widely distributed among organisms today.

1D1: There are several hypotheses about the natural origin of life on earth, each with supporting scientific evidence.

Objectives:

1. Be able to discuss the evolution of cells including the endosymbiont theory.
2. Be able to differentiate between prokaryotic and eukaryotic cells according to the types of organelles are contained in each and in which organisms.
3. Be able to identify the differences between plant and animal cells (organelles).
4. Be able to diagram the structure of the cell membrane and discuss its function.
5. Be able to discuss the principles of osmosis and diffusion in plant and animal cells.
6. Be able to explain the difference between active and passive transport.
7. Be able to discuss and give examples of endocytosis and exocytosis in cells.

Essential Questions:

▼ How do shared conserved cellular processes support the idea that all organisms are linked by lines of descent from common ancestry?

▼ How do cells create and maintain internal environments that are different from their external environments?

▼ How do structure and function of subcellular components and their interactions provide essential cellular processes?

▼ How do cells maintain dynamic homeostasis by the movement of molecules across membranes?

Major Topics and Textbook Correlations:

Chapter 6 (A Tour of the Cell) – not 6.1, 6.6, or 6.7

Chapter 7 (Membrane Structure and Function)

25.1 and 25.3 – Endosymbiont theory

Helpful Web Sites

<http://www.phschool.com/science/biology_place/labbench/lab1/intro.html>

<http://learn.genetics.utah.edu/content/cells/>