

Biology-Unit 3a Study Guide

Bio1u3asg: Cell Structure

Study Objectives (things to learn):

- Describe the key events that lead to the discovery of cells. (page 69-71)
 - Who was **Hooke** and what role did he play in the discovery of cells?
 - Who was **Leeuwenhoek** and what role did he play in the discovery of cells?
 - What are the three essential parts of the “**cell theory**”
 - Since those early beginnings, what amazing things have we been able to do with cells?
- Advocate for the small size of cells. (page 72-73)
 - Why is it important for cells to be small?
 - How does cell shape relate to cell function?
- Relate cellular structures to their functions. (page 74-85)
 - List and describe the three basic parts of a cell.
 - What are the two basic types of cells and how does one tell them apart?
 - Create a table of cell structures with column headings of “**name of structure**”, “**physical characteristics of structure**”, and “**biological role of structure**”.
- Compare and contrast the structures found in typical plant, animal and bacterial cells. (page 87-90)
 - Create a Venn diagram depicting the similarities and differences of a plant, animal, and bacterial cell.
 - What organelles have their own DNA? What organisms to these organelles resemble?
- Explain the role of the cell membrane as a highly selective barrier in diffusion, osmosis and active transport. (page 97-106)
 - Describe **Passive Transport** and the four ways molecules can move across a membrane when no energy is required.
 - Describe **Active Transport** and the three types our cells use.
 - What prevents some molecules from crossing the cell membrane?

Terms to be familiar with:

chromosome cytosol prokaryote eukaryote centrioles chloroplast cytoskeleton cytoplasm bilayer
microtubules microfilaments vacuoles lysosomes golgi apparatus mitochondria peroxisomes ribosomes
endoplasmic reticulum homeostasis active transport passive transport

Assignments:

- Reading from Chapter 4 (pages 69-90); Chapter 5 (pages 97-106)
- Notebook: **10pts**
 - Reading Notes (right)
 - Concept Maps (one CMap for each study objective using appropriate terms from readings and/or vocabulary list) (left)
 - Reflections/Review Questions (left)
- Inquiry Lab: Diffusion in Agar Cells
- Lab Report: Osmosis and Diffusion Investigation **10pts**
- Quiz1 (SO's 1 and 2) **10pts**
- Quiz2 (SO's 3 and 4) **10pts**
- Quiz3 (SO 5) **10pts**
- 3a Unit Exam (a test of what you know, understand, and can apply) **20pts**

Misconceptions:

“If an organism has a cell wall, they must not have a plasma membrane (cell membrane).” ALL CELLS HAVE A PLASMA MEMBRANE

“When substances are taken into a cell by endocytosis, they are IN the cell.” SUBSTANCES TAKEN INTO THE CELL IN THIS WAY ARE STILL SEPARATED FROM CYTOPLASM BY THE VESICLE MEMBRANE. SUBSTANCES STILL NEED TO BE DIGESTED AND ABSORBED THROUGH THIS MEMBRANE BEFORE BEING USED BY CELL

Web Resource: www.cellsalive.com