MAP 2 MASTERY Unit 3A: Life of a Cell

THESE ARE THE IMPORTANT CONCEPTUAL UNDERSTANDINGS I NEED TO MASTER FOR THIS UNIT:

A. Identify important Structures and Functions of cell parts and classify cells using this information. (Cell Basics!) **" *I CAN…* "**	***RESOURCES*** THAT MAY SUPPORT MY LEARNING:	***RESULTS/SCORES*** FROM LEARNING ASSESSMENTS	***MASTERY REFLECTION***: WHAT DO I STILL NEED TO MASTER BEFORE THE EXAM? **(What is your strategy for improvement?)** **1 ON 1 : HELP** **Most effective DURING instruction… do not wait until the end of the unit!**
• Define "cell" using the 3 parts of the cell theory • Understand the surface area to volume ratio and how it applies to cellular transport • recognize major cell organelles, describe their structure, and their contribution to cell function • Compare and contrast major characteristics of prokaryotes and eukaryotes • Compare and contrast major characteristics of plant, animal, and bacterial cells • identify plant, animal, and bacteria cells by their unique characteristics.	See Weebly/edline and text for: • Sect. 4.1, 4.3- 4.4 • Sect. 4.6 – 4.11 Essential Study Partner: Unit: Cells Topic: Cell Structure, (**all** – except cytoskeleton) • Cell Manual * other documents and links posted in Course Documents and/or discussed in class. (notes)	SELF ASSESSMENT(s) MASTERY CHECK(s)	INSTRUCTOR VERIFICATION:
B. Demonstrates an understanding of cell membrane function and forms of cell transport. **" *I CAN…* "**	***RESOURCES*** THAT MAY SUPPORT MY LEARNING:	***RESULTS/SCORES*** FROM LEARNING ASSESSMENTS	***MASTERY REFLECTION***: WHAT DO I STILL NEED TO MASTER BEFORE THE EXAM? **(What is your strategy for improvement?)** **1 ON 1 : HELP** **Most effective DURING instruction… do not wait until the end of the unit!**
• Identify the components of the fluid mosaic model of the cell membrane and relate their functions: o Phospholipid bilayer o Polar/non polar parts o Surface proteins o Membrane proteins o Cholesterol o Carbohydrate Chains • Explain the role of passive transport in the movement of substances in and out of cells: o Concentration gradient o Diffusion o Osmosis o Facilitated diffusion o Hypotonic/hypertonic/isotonic conditions • Explain how Active Transport differs from passive transport and provide an example • Be able to explain the process of Bulk Transport of materials into and out of the cell	See Weebly/edline and text for: • Sect. 4.2 • Sect 4.12 - 4.15 * Essential Study Partner: • Unit: Cells Topic: Cell Structure, endomembrane * other documents and links posted in Course Documents and/or discussed in class. (notes)	SELF ASSESSMENT(s) MASTERY CHECK(s)	INSTRUCTOR VERIFICATION:

THESE ARE THE IMPORTANT CONCEPTUAL UNDERSTANDINGS I NEED TO MASTER FOR THIS UNIT:

C. Demonstrates an understanding of the events which take place during the life cycle of a cell, mitosis and meiosis **" *I CAN…* "**	***RESOURCES*** THAT MAY SUPPORT MY LEARNING:	***RESULTS/SCORES*** FROM LEARNING ASSESSMENTS	***MASTERY REFLECTION***: WHAT DO I STILL NEED TO MASTER BEFORE THE EXAM? **(What is your strategy for <u>improvement</u>?)** **1 ON 1 : HELP** **Most effective <u>DURING</u> instruction… do not wait until the end of the unit!**
• Contrast the role of each of the following in the normal life of a cell: -Interphase (Specifically the G1, S, and G2 phases.) -Mitosis/Cytokinesis • Describe a <u>check point</u> - Specify <u>when</u> in the cell cycle they occur, and what they check for • Predict what may happen to a normal cell if it fails one of its checkpoints • State the overall goal of Mitosis • Contrast the following: DNA, chromatin, Chromosome, sister chromatids, homologous pair of chromosomes • Describe how DNA is packaged into chromosomes • Contrast the purposes of prophase, metaphase, Anaphase, and telophase. • Be able to recognize a cell in each of the stages: - interphase, prophase, metaphase, anaphase, Telophase, and cytokinesis. • How do changes in the cell cycle/mitosis lead to cancer	See Blackboard and text for: • Sect. 6.1-6.7 * Essential Study Partner: • Unit: Genetics Topic: Cell Division→ Mitosis/Cell Cycle * Cell Cycle/mitosis tutorial • Time Article on cancer drugs	SELF ASSESSMENT(s) MASTERY CHECK(s)	INSTRUCTOR VERIFICATION:

THESE ARE THE IMPORTANT CONCEPTUAL UNDERSTANDINGS I NEED TO MASTER FOR THIS UNIT:

D. Demonstrates an understanding of sexual reproduction and attainment of genetic diversity in the human species. **" *I CAN…* "**	***RESOURCES*** THAT MAY SUPPORT MY LEARNING:	***RESULTS/SCORES*** FROM LEARNING ASSESSMENTS	***MASTERY REFLECTION***: WHAT DO I STILL NEED TO MASTER BEFORE THE EXAM? **(What is your strategy for <u>improvement</u>?)** **1 ON 1 : HELP** **Most effective <u>DURING</u> instruction… do not wait until the end of the unit!**
* Contrast the role of somatic and germ cells * Contrast the purpose of human gametes and zygotes * Explain the role, importance, & purpose of Meiosis in sexual reproduction for humans * Describe the events which take place during Meiosis in order to help humans achieve the production of gametes and assurance of genetic diversity * Describe the role of crossing over and independent assortment in the assurance of genetic diversity * Contrast spermatogenesis and oogenesis * Contrast the following chromosomal entities: sister chromatids, homologous chromosomes, and a tetrad. *Explain the difference between a haploid & diploid cell & provide at least 1 specific human example of each	**See Edline & text for:** • Sect. 6.9 – 6.13 • Sect 7.10 * Essential Study Partner: • Unit: Genetics Topic: Cell Division→ • Meiosis • Review of Cell Div. • Evolution of sex • Unit: Genetics Topic: Chromosomes→ • Sex Chomosomes • Abnormal Chrom.	SELF ASSESSMENT(s) MASTERY CHECK(s)	INSTRUCTOR VERIFICATION:

PATH 2 COLLEGE READINESS SCIENTIFIC SKILLS &/OR APPLICATION OF RESEARCH

<table>
<tr>
<td>2. In order to become "college ready," I will work to master these standards during this unit (as well as throughout the course):
" I CAN… " (13 – 15) reflects level of complexity</td>
<td>RESOURCES THAT MAY SUPPORT MY LEARNING:</td>
<td>RESULTS/SCORES FROM LEARNING ASSESSMENTS/ LAB EXPERIENCES</td>
<td>MASTERY REFLECTION: WHAT DO I STILL NEED TO MASTER BEFORE THE NEXT LAB/EXAM? OR the PLAN TEST, ACT, etc
1 ON 1 : What is your strategy for improving your reasoning and data presentation/analysis skills?
HELP</td>
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<td rowspan="2">• Basic Use of Microscope technique:
- Demonstrate basic microscope parts & functions
- Find a specimen on a prepared slide and demonstrate proper focusing technique while progressing from low through high power (using only fine focus on high power)
• Select two or more pieces of data from a simple data presentation (16 - 19)
• Determine how the value of one variable changes as the value of another variable changes in a simple data presentation (16 – 19)
• Understand a simple experimental design (20 – 23)
• Identify a control in an experiment (20 – 23)
• Translate information into table or graph (20 – 23)
• Select a simple hypothesis, prediction, or conclusion that is supported by a data presentation</td>
<td rowspan="2">See Blackboard for:

• documents and links posted in Course Documents and presented in class.
• Lab report guidelines

<u>Possible "labs" MAY include</u>:
• Microscope Lab Practical Test
• Cell Manual
• "Time for Mitosis" Lab report
• "Dialysis Tubing Lab" report

(subject to change and may vary with instructors)</td>
<td>SELF ASSESSMENT(s)

MASTERY CHECK(s) / LABS / EXAMS</td>
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<td>INSTRUCTOR VERIFICATION:</td>
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