**Biology Weekly Planner** Week of 10/2/17

**Bio.1.2.2 Analyze how cells grow and reproduce in terms of interphase, mitosis and cytokinesis.**

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| Day | **Objective** | **Essential question** | **Activities** | **Handouts/\*Homework** |
| Mon 10/2 | Students will analyze the cell cycle. | What is the cell cycle? | -finish mutations notes-Cell cycle overview-Mitosis notes | <https://www.youtube.com/watch?v=woD6zvp-4E8> |
| Tues10/3 | Students will analyze the cell cycle. | What is the cell cycle? |  | YIKES!! PACT tutoring day! |
| Wed | Students will analyze mitosis | What is meiosis? | MEIOSIS NOTES -Group activity | <https://www.youtube.com/watch?v=65SODTL_QsA> (14 min) |
| Thur | Students will analyze mitosis | What is meiosis? | Meiosis project | \*See schoology for midterm review ppt!! |
| Fri10/6 | Students will analyze mitosis and the cell cycle | What is the cell cycle and mitosis? | Mid-term review |  |

WHY are cells small?

10/2/17 Monday



Nesmith room 206 - BACK TO TEAMS 😊

-hand in electronics/cell phone, fold and hand in any make up work. LAST day of the 9 weeks= Friday 10/6

Mid-term exam= Monday 10/9

-Finish up with notes- Mutations

-Cell cycle and mitosis introduction

10/3/17 Tuesday



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10/4/17 Wednesday



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-hand in electronics/cell phone, fold and hand in any make up work. LAST day of the 9 weeks= Thursday 10/5

Mid-term exam= Monday 10/9

-Finish up with notes- Meiosis

-Meiosis introduction

10/5/17 Thursday


-NEW teams!! Hand in cell phone, test corrections and any make up work!

-Finish packet with new team

-Meiosis project!

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10/6/17 Friday



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SUPERINTENDENT’S Questions!!!

Red= not covered yet Blue=covered but needs to be revisited Green= covered thoroughly but reinforcement needed.

10/1/17 Here is where we should be:

Bio.1.1 Understand the relationship between the structures and functions of cells and their organelles. Bio.1.1.1 Summarize the structure and function of organelles in eukaryotic cells (including the nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes) and ways that these organelles interact with each other to perform the function of the cell. Bio.1.1.2 Compare prokaryotic and eukaryotic cells in terms of their general structures (plasma membrane and genetic material) and degree of complexity. Bio.1.1.3 Explain how instructions in DNA lead to cell differentiation and result in cells specialized to perform specific functions in multicellular organisms.

Bio.1.1.1  Identify these cell organelles in diagrams of plant and animal cells. (middle school review)  Explain how the structure of the organelle determines it function. (Example: folded inner membrane in mitochondria increases surface area for energy production during aerobic cellular respiration).  Summarize how these organelles interact to carry out functions such as energy production and use, transport of molecules, disposal of waste, and synthesis of new molecules. (Example: DNA codes for proteins which are assembled by the ribosomes and used as enzymes for energy production at the mitochondria).

Bio.1.1.2  Proficiently use proper light microscopic techniques as well as determine total power magnification. The purpose is to use microscopes to observe a variety of cells with particular emphasis on the differences between prokaryotic and eukaryotic as well as plant and animal cells. While students are not expected to understand how scanning and electron transmission microscopes work, they should recognize that they reveal greater detail about eukaryotic and prokaryotic cell differences.  Infer that prokaryotic cells are less complex than eukaryotic cells.  Compare the structure of prokaryotic and eukaryotic cells to conclude the following: ▪ Presence of membrane bound organelles – mitochondria, nucleus, vacuole, and chloroplasts are not present in prokaryotes.

Ribosomes are found in both. ▪ DNA and RNA are present in both, but are not enclosed by a membrane in prokaryotes. ▪ Contrasts in chromosome structure – circular DNA strands called plasmids are characteristic of prokaryotes. ▪ Contrasts in size – prokaryotic cells are smaller.

Bio.1.1.3  Compare a variety of specialized cells and understand how the functions of these cells vary. (Possible examples could include nerve cells, muscle cells, blood cells, and sperm cells.)  Explain that multicellular organisms begin as undifferentiated masses of cells and that variation in DNA expression and gene activity determines the differentiation of cells and ultimately their specialization. ▪ During the process of differentiation, only specific parts of the DNA are activated; the parts of the DNA that are activated determine the function and specialized structure of a cell. ▪ Because all cells contain the same DNA, all cells initially have the potential to become any type of cell; however, once a cell differentiates, the process cannot be reversed. ▪ Nearly all of the cells of a multicellular organism have exactly the same chromosomes and DNA. ▪ Different parts of the genetic instructions are used in different types of cells, influenced by the cell's environment and past history.  Recall that chemical signals may be released by one cell to influence the development and activity of another cell.  Identify stem cells as unspecialized cells that continually reproduce themselves and have, under appropriate conditions, the ability to differentiate into one or more types of specialized cells. ▪ Embryonic cells which have not yet differentiated into various cell types are called embryonic stem cells. ▪ Stem cells found in organisms, for instance in bone marrow, are called adult stem cells. ▪ Scientists have recently demonstrated that stem cells, both embryonic and adult, with the right laboratory culture conditions, differentiate into specialized cells. Note: It is not essential for students to understand the details of how the process of transcriptional regulation in a cell produces specific proteins which results in cell differentiation.

Bio.1.2 Analyze the cell as a living system. Bio.1.2.1 Explain how homeostasis is maintained in a cell and within an organism in various environments (including temperature and pH). Bio.1.2.2 Analyze how cells grow and reproduce in terms of interphase, mitosis and cytokinesis. Bio.1.2.3 Explain how specific cell adaptations help cells survive in particular environments (focus on unicellular organisms).

Bio.1.2.1  Explain how cells use buffers to regulate cell pH and how cells can respond to maintain temperature, glucose levels, and water balance in organisms.  Compare the mechanisms of active vs. passive transport (diffusion and osmosis).  Conclude how the plasma membrane structure functions.  Explain changes in osmotic pressure that occurs when cells are placed in solutions of differing concentrations. Buffer

Bio.1.2.2  Outline the cell cycle – Growth1, Synthesis, Growth2, Mitosis, and Cytokinesis.  Recognize mitosis as a part of asexual reproduction. (middle school review)  Organize diagrams of mitotic phases and describe what is occurring throughout the process. Note: When students learn about meiosis (Bio.3.2.1), they should compare it to the process of mitosis.

Bio.1.2.3  Explain how various structures of unicellular organisms help that organism survive. Emphasis is on contractile vacuoles, cilia, flagella, pseudopods, and eyespots.  Summarize adaptive behaviors – examples include chemotaxis and phototaxis.