**CELL CYCLE UNIT GUIDE- Due**

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| Monday | Tuesday | Wednesday | Thursday | Friday |
| January 4-  No School | 5-Cell Cycle/Mitosis | 6-Cell Cycle/ Mitosis | 7-Mitosis  *Unit Guide Review section A&B due* | 8-Meiosis |
| January 11-Meisosis | 12-Meiosis  *Chp. 5 Vocab Due*  *Unit Guide Review section C&D due* | 13-Mutations | 14-**Mutations**  **Bio In News #6** *Unit Guide Review section E&F* | 15-Half Day  **End of 6 Weeks** |
| January 18- No school | 19-**CBA & Vocab Quiz - Unit Guide Due**  Review | 20-**Test: Cell cycle, Mitosis, Meiosis, Mutations** | 21-Discuss & Correct Test | 22-Start Genetics |

**Read:** Chapters 5, 6.1, 6.2, and 8.7 **UNIT TEST:**

**Watch (Supplemental Resource):**

* Amoeba sisters (mitosis, meiosis, mutations, cell cycle and cancer),
* Bozeman science (phases of mitosis, phases of meiosis, mutations)

**Book online at :** [**http://my.hrw.com**](http://my.hrw.com)

Use your username and password to get to the biology book or

* Username: bscience42 Password: eagles
* Mrs. Lamkin’s website: [www.lakeridgesciencelamkin.weebly.com](http://www.lakeridgesciencelamkin.weebly.com) Password: swim@h2o

**What the state of Texas wants you to know!**

* TEKS 5A:Describe the stages of the cell cycle, including DNA replication and mitosis, and the importance of the cell cycle to the growth of organisms.
* TEKS 5D: Recognize that disruptions of the cell cycle lead to diseases such as cancer.
* TEKS 6E:Identify and illustrate changes in DNA and evaluate the significance of those changes.
* TEKS 6G:Recognize the significance of meiosis to sexual reproduction.
* TEKS 6H: Describe how techniques such as DNA fingerprinting, genetic modifications and chromosomal analysis are used to study the genomes of organisms.

**Listen and Look**

Here is a list of key terms you will hear and see during the reading and video. Get to know them!

**Directions:** Your objective in this activity is to earn 100 points. Choose any activities you wish and complete by the due date assigned.

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| **Activity** | **Points** |
| 1. Complete a Frayer diagram for each word. Divide your diagram into the following categories: definition, Sentence, Diagram, and Example. (Diagram is a labeled picture.) | 100 |
| 2. Create a Vocabulary Booklet. Each page must have the term at the top, the definition at the bottom, an example and an illustration in the middle with a sentence or description using the term. | 100 |
| 3. Word Detective for all words. Use your textbook and a dictionary…Do they provide the same definitions? (Make a chart that has the word, definition from book and page #, definition from dictionary, name of dictionary and page #, and sentence using word.) | 100 |
| 4. Complete a Vocabulary Log with all vocab words: (word, definition, and example or illustration). | 50 |
| 5. Create a rap, song, riddle, or poem including words and meanings. (25 points extra if you perform it for the class) | 50 |
| 6. Diagram representation of each word. Needs to be no more than 4 on a page (A diagram is a labeled picture) | 25 |
| 7. Create and complete a crossword puzzle including all words. You MUST give clues or definitions for the Across and Down Sections. You may not use the same clues or definitions as word search. | 50 |
| 8. Create and complete a word search including all words. You MUST give clues or definitions. DO NOT list the actual key word. You may not use same clues or definitions as the crossword puzzle. | 50 |
| 9. Write an essay or story including all words. Only one word per sentence. Words must be used correctly. Spelling and grammar will be considered. Essay/story must be at least 3 paragraphs long. | 50 |
| 10. Write a sentence for each word that shows the meaning of the vocabulary. This is NOT simply writing the definition. | 25 |
| 11. Create a detailed and logical concept or word map. Use linking words on the lines or arrows. Must show relationship between words. | 50 |
| 12. Create a set of flashcards. | 25 |

Visit: <http://bit.ly/1umMyTO> or

<http://lakeridgesciencelamkin.weebly.com/biology-vocab-templates.html>

to obtain templates and link to websites to help with your assignment.

VOCABULARY EXERCISES: due…

VOCAB QUIZ: ….

* **Cell cycle:** pattern of growth, DNA replication, and cell division.
* **Mitosis:** the division of the cell nucleus and its contents.
* **Cytokinesis:** process by which the cell cytoplasm divides.
* **Chromosome:** long, continuous thread of DNA that consists of numerous genes and regulatory information.
* **Prophase:** first phase of mitosis when chromatin condenses, the nuclear envelope breaks down, the nucleolus disappears, and the centrosomes and centrioles migrate to opposite sides of the cell.
* **Metaphase:** second phase of mitosis when spindle fibers align the chromosomes along the cell equator.
* **Anaphase:** third phase of mitosis during which chromatids separate and are pulled to opposite sides of the cell.
* **Telophase:** last phase of mitosis when a complete set of identical chromosomes is positioned at each pole of the cell, the nuclear membranes start to form, the chromosomes begin to uncoil, and the spindle fibers disassemble.
* **Growth factor:** broad group of proteins that stimulate cell division.
* **Cancer:** common name for a class of disease characterized by uncontrolled cell division.
* **Carcinogen:** substance that produces or promotes the development of cancer.
* **Asexual reproduction:** process by which offspring are produced from a single parent; does not involve the joining of gametes.
* **Somatic cells:** cells that make up all of the body tissues and organs, except gametes
* **Gamete:** sex cell, egg or sperm
* **Homologous chromosomes:** chromosomes that have the same length, appearance, and copies of genes, although the alleles may differ.
* **Autosomes:** chromosome that contains genes for characteristics not directly related to the sex of the organism.
* **Sex chromosomes:** chromosome that directly controls the development of sexual characteristics.
* **Sexual reproduction:** process by which two gametes fuse and offspring that are a genetic mixture of both parents are produced.
* **Fertilization:** fusion of an egg and sperm cell.
* **Diploid:** cell that has two copies of each chromosome, one from the egg and one from the sperm.
* **Haploid:** cell that has only one copy of each chromosome.
* **Meiosis:** form of nuclear division that divides a diploid cell into haploid cells; important in forming gametes for sexual reproduction
* **Mutation:** change in the DNA sequence.
* **Point mutation:** mutation that involves a substitution of only one nucleotide.
* **Frameshift mutation:** mutation that involves the insertion or deletion of a nucleotide in the DNA sequence.
* **Mutagen:** agent that can induce or increase the frequency of mutation in organisms.
* **Chromosomal mutation:** mutation affecting the chromosome

**Recall and Review:** Use the videos and your textbook to help you answer the following questions in your BILL.

**A. Chapter 5.1**

1. Draw the cell cycle has four main stages – G1, S, G2, and M. Describe occurs in the cell during each stage?
2. **Predict** which stages of the cell cycle generally require about the same amount of time in all human cells?

1. **State** the relationship between a cell’s surface area and its volume.

1. Which has the larger ratio of surface are to volume, a tennis ball or a soccer ball? **Explain.**

**B. Chapter 5.2**

1. **Describe** the relationship between a molecule of DNA and a chromosome.

1. **Draw** what a chromosome looks like during metaphase. Identify the chromatids and the centromere.
2. Briefly **explain** why the daughter cells resulting from mitosis are genetically identical to each other and to the original cell.

1. **Compare** cytokinesis in animal versus plant cells.

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| Animal | Plant |
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**C. Chapter 5.3**

1. **Describe** what a growth factor is and how it influences the cell cycle.

1. **Explain** how cancer cells differ from normal cells.

1. **Compare** benign and malignant tumors.

**D. Chapter 6.1**

1. **State** the location of germ cells in the human body.

1. **Differentiate** between an autosome and a sex chromosome.

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| Autosome | Sex Chromosome |
|  |  |

1. Is the cell that results from fertilization a haploid or diploid cell? Use a drawing and **Explain.**

1. A fruit fly has diploid cells with 8 chromosomes. **Explain** how many chromosomes are in its haploid gametes.

1. Does mitosis or meiosis occur more frequently in your body? **Explain** your answer.

**E.** **Chapter 6.2**

1. How do homologous chromosomes differ from sister chromatids? Draw an example of each one.
2. **List** the key differences between meiosis 1 and meiosis 2.

**F. Chapter 8.7**

1. **Describe** three ways mutations can occur.

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1. **Explain** why frameshift mutations have a great effect than do point mutations.

1. If GUA is changed to GUU, will the resulting protein be affected? **Explain**.

**G. Sample Multiple Choice Questions**

1. The phase of mitosis that is characterized by the arrangement of all chromosomes along the equator of the cell is called: a. telophase. b. metaphase. c. anaphase. d. prophase.

2.Which is characteristics of cancer?

a. rapid and uncontrolled cell growth b. cell growth delayed at G1 Checkpoint

c. cell growth delayed at G2 checkpoint d. damage to a cell’s cytoplasm

3. Which process creates gametes?

A. mitosis B. Meiosis C. Binary fission D. crossing over

4.A mutation is a DNA molecule is passed to offspring only when the mutation occurs in a:

a. neuron b. cell wall c. nuclear membrane d. gamete

5.Which of these symbols represents the norma karyotype of a human female?

a.XXY b.XX c.XY d.XXX

Notes: