**2nd Nine Weeks Test Review**

What are three reasons why cells divide?

What does diploid mean, and what is the human diploid number?

What does haploid mean, and what is the human haploid number?

What does the cell cycle refer to?

What stage of the cell cycle does a cell spend most of its time in? What percentage of a cell’s life is spent in this stage?

What are the 3 phases of Interphase, and what happens in each?

What are the four phases of mitosis?

During which phase of the cell cycle is DNA duplicated?

Why is it important that a cell’s DNA is duplicated before cell division?

Write a brief explanation of each phase

|  |  |
| --- | --- |
| **Interphase** |  |
| **Prophase** |  |
| **Metaphase** |  |

|  |  |
| --- | --- |
| **Anaphase** |  |
| **Telophase** |  |
| **Cytokinesis** |  |

What is the role of spindle fibers in cell division?

What is the difference between telophase and cytokinesis?

How is cytokinesis different between animal and plant cells?

How many cells are produced by mitotic cell division? How do they compare genetically with the parent cell?

What happens when a cell loses control of the cell cycle?

Describe how the cell cycle is regulated (controlled).

What is cancer?

What stage of the cell cycle do cancer cells **not** go through?

What does DNA stand for?

DNA is what type of macromolecule?

The building blocks of DNA are called what?

Describe the “double helix” shape of a DNA molecule (what does it look like?) Who discovered this shape?

Where is DNA found in eukaryotic cells?

What are the 3 parts of a nucleotide?

What is the sugar found in DNA?

What makes up the “backbone” of a DNA molecule?

What are the four nitrogen bases found in DNA?

What base pairs match up in DNA?

Write the complimentary DNA strand to: **TACCGAATACCTAGC**

Will the amount of adenine be equal to the amount of thymine in a DNA molecule? Why or why not?

Will the amount of thymine be equal to the amount of cytosine in a DNA molecule? Why or why not?

What is DNA replication?

What is inside a virus?

How is a virus able to get into a living cell?

Why is it necessary for a virus to infect living cells?

Describe the lytic cycle of viral replication.

Describe the lysogenic cycle of viral replication.

How are the lytic and lysogenic cycles different?

HIV (Human Immunodeficiency Virus)

What kind of cells does it infect?

How is it transmitted from organism to organism?

How is meiosis useful to a sexually reproducing organism?

How is meiosis different from mitosis?

What happens in meiosis that causes for genetic variation (3 things)? Describe each process.

How many cells are produced at the end of meiosis and how do they compare genetically to the parent cell?

What molecules make up proteins?

What does RNA stand for?

List 3 ways in which RNA is different from DNA

What are the 3 types of RNA, where are they found, and what is the function of each?

What are the 2 stages of protein synthesis?

Where does transcription take place?

What type of RNA is created during transcription?

What is a codon?

Where does the “message” that is coded on the RNA during transcription come from?

In what part of the cell does translation take place?

Use the following DNA strand to find the mRNA, tRNA, and amino acids:

**DNA: T A C G T T A T G A T A C T T A C T**

**mRNA:**

**tRNA:**

**amino acids:**

What change in DNA or RNA causes a point mutation?

Will a point mutation effect/change any amino acid after the mutation?

How will a point mutation change the protein being made?

How will an insertion or deletion mutation change the protein being made?

Will a frameshift mutation cause any changes to the amino acids after the mutation?

How will a frameshift mutation change the protein being made?



