1. What is the cell cycle?

**Review Packet – Mitosis and Meiosis**

A cell’s life cycle

1. How does the cell cycle compare to an animal’s life cycle?

Both have stages that are defined and different

1. What are the 4 phases to the cell cycle?

G1, S, G2, M

1. What does the G1 phase stand for? What happens in the G1 of the cell cycle?

Gap 1 Phase. Cell Growth

1. What does the Sphase stand for? What happens in the S of the cell cycle?

Synthesis Phase. DNA is doubled

1. What does the G2 phase stand for? What happens in the G2 of the cell cycle?

Gap 2 Phase. Cell Growth and preparation for mitosis

1. What does the Mphase stand for? What happens in the M of the cell cycle?

Mitosis. Cell Division

1. Do all phases of the cell cycle take the same amount of time?

No. They are all different

1. What is the process of cell division called?

Mitosis

1. What are the different phases of the M phase? What is a good acronym for the stages of the M phase?

Prophase, Metaphase, Anaphase, Telophase.

Interesting Pies, Mike Always Tries

1. What is interphase? What steps of the cell cycle are included in Interphase?

G1, S, G2 phase make up interphase. It is all of the steps that are not when the cell divides.

1. How might you draw interphase?



1. What is prophase? What steps of the cell cycle are included in prophase?

Preparation from mitosis.

Nuclear membrane breaks down, Chromosomes condense and centrioles appear

1. How might you draw prophase?



1. What is metaphase? What steps of the cell cycle are included in metaphase?

Chromosomes line up in the middle.

Chromosomes migrate to the middle of the cell and then line up in the middle of the cell

1. How might you draw metaphase?



1. What is anaphase? What steps of the cell cycle are included in anaphase?

Chromatids move away from each other.

Chromosomes separate at the centromere, they are pulled towards the poles of the cell and they stop when they reach the poles of the cell.

1. How might you draw anaphase?



1. What is telophase? What steps of the cell cycle are included in telophase?

The end of mitosis.

Nuclear envelope reforms, chromosomes unravel and centrioles breakdown.

1. How might you draw telophase?



1. What is cytokinesis?

Division of the cytoplasm

1. How is cytokinesis different in plants?

DO NOT WORRY ABOUT THIS QUESTION

1. What is an internal regulator? Give an example.

Tells a cell when to divide. Comes from inside the cell. Cyclins

1. What is an external regulator? Give an example.

Tells a cell when to divide. Comes from outside the cell. Growth Factor

1. Are there diseases of the cell cycle? What are they?

Cancer

1. Describe how a cut heals.

Cells grow inwards from where they separate.

1. What is cancer?

Uncontrolled cell growth

1. Is cancer caused by a foreign invader?

It can be caused by things that damage a cell’s DNA.

1. How can cancer spread around the body?

Cells shed from the original tumor and land around the body

1. What does it mean to be haploid?

One copy of the cell’s DNA

1. What does it mean to be diploid?

Two copies of the cell’s DNA

1. What is the difference between a cell that is haploid and a cell that is diploid?

Two chromatids versus one chromitids

1. What is a gamete?

A cell that contains half of the DNA an organism needs

1. What cells are gametes in most animals (male and female)?

Sperm and Egg

1. What happens when two haploid gametes combine?

They create a new organism

1. What might happen if two diploid gametes were to combine?

Cell would die

1. What is meiosis?

Creation of gametes

1. Where is meiosis performed?

Ovaries or testies

1. What two major ways does meiosis differ from mitosis?

Two different divisions as opposed to one division.

During metaphase 1 chromosomes line up in pairs.

1. How many times do cells divide in mitosis? How many times do they divide in meiosis?

Twice meiosis. Once Mitosis

1. How many cells are created after mitosis? Are they similar to each other?

Two identical daughter cells

1. How many gametes are created in meiosis? Are they similar to each other?

Four non identical gametes

1. What is crossing over?

Mixing of DNA during prophase 1.

1. How does crossing over alter the DNA given to the offspring?

Varies DNA. Increased genetic versatility.