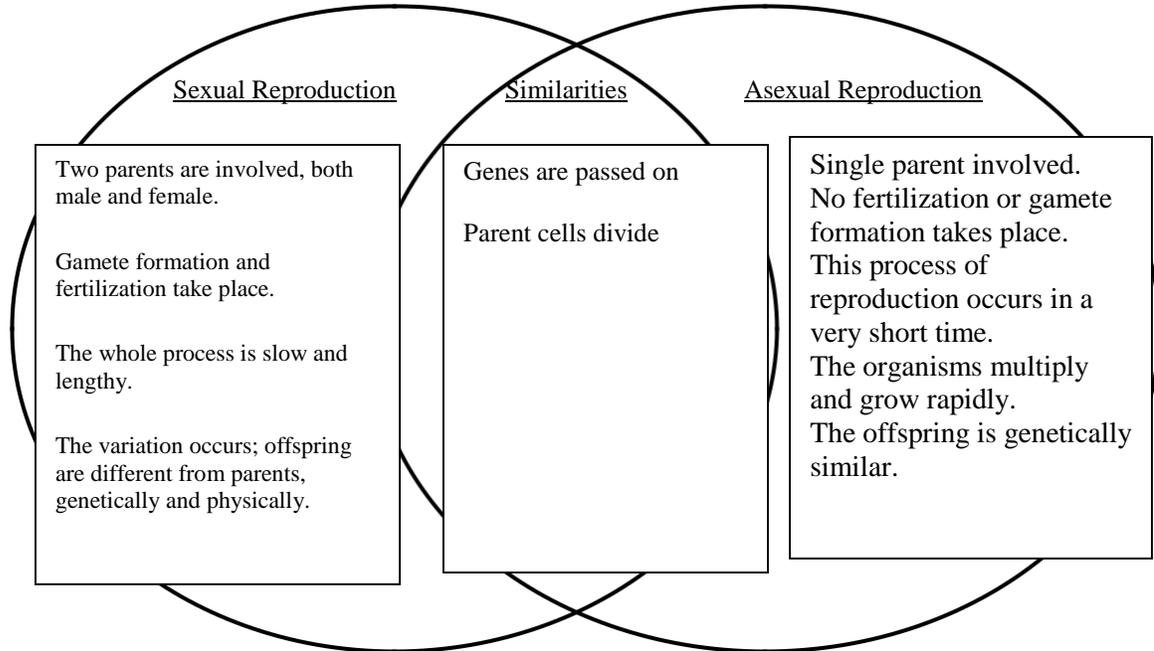
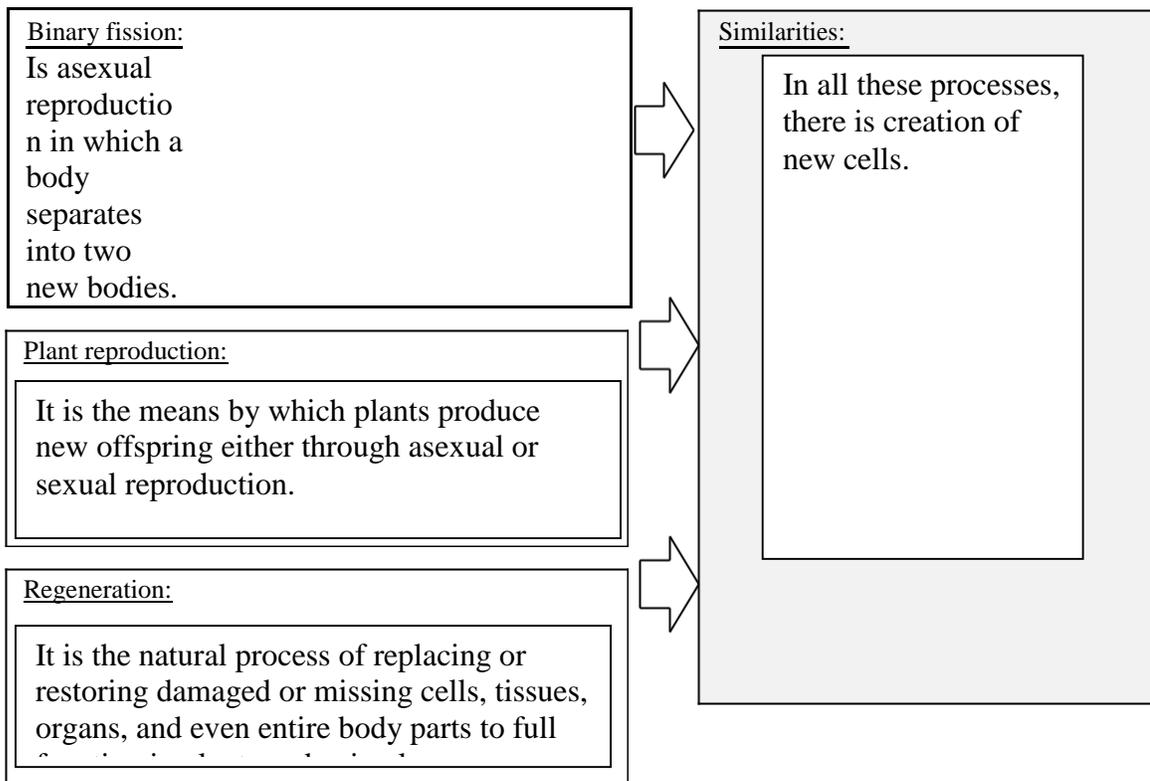


Assignment 5 - Cell Division: Mitosis & Meiosis

1. Compare and contrast characteristics of sexual and asexual reproduction. Use the Venn diagram to briefly show how these are similar, and how are they different.

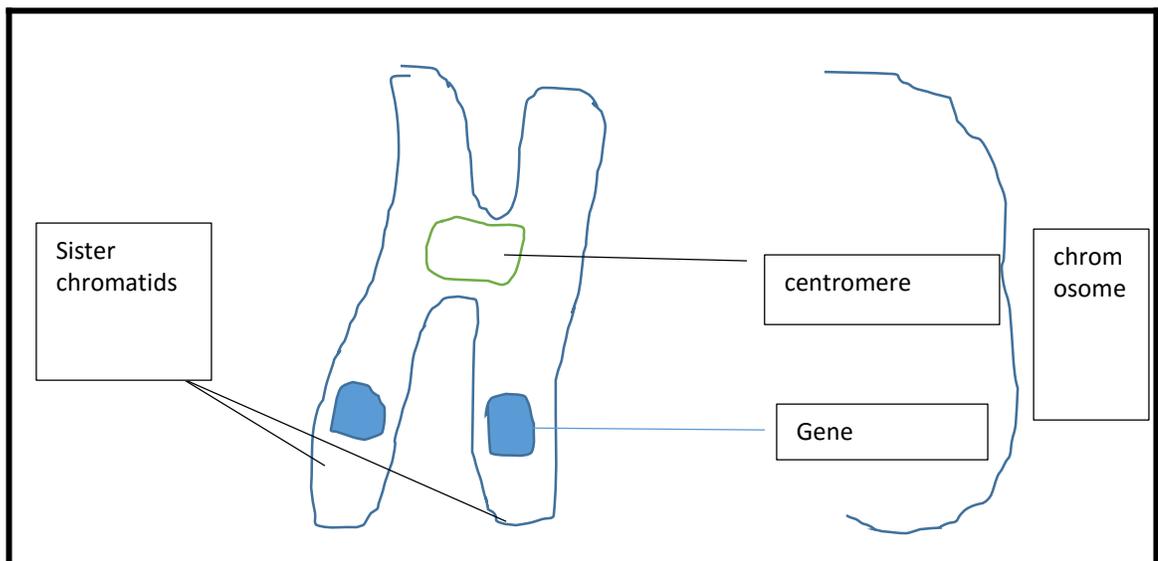


2. Use the graphic below to compare and contrast the similarities and differences of types of asexual reproduction.



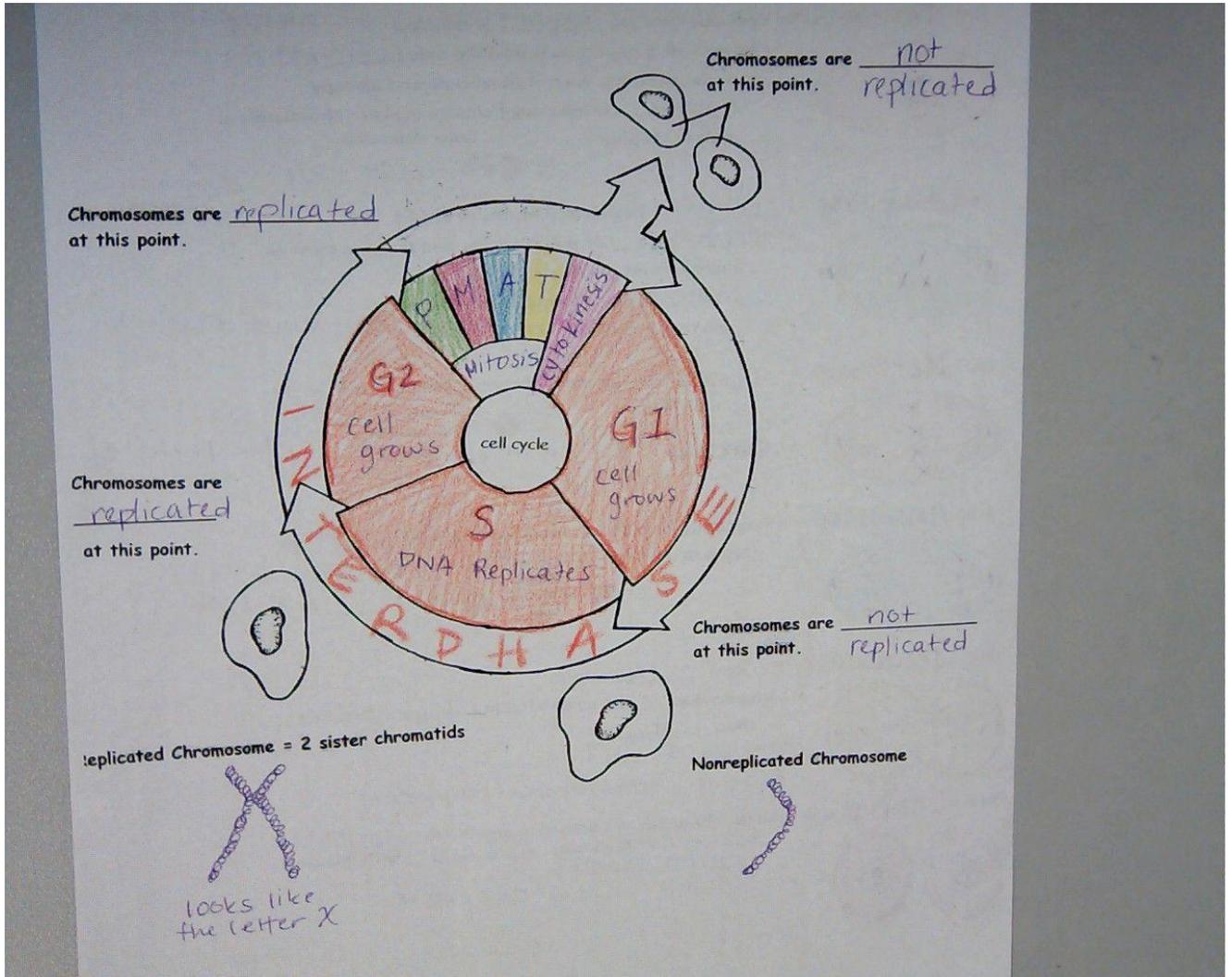
3. Contrast cell types by explaining the difference between somatic cells and gametes.
 ___somatic cells contains full sets of chromosomes and are thus diploid whereas gametes have one set of chromosomes and are haploid .

4. Genes are found in chromosomes _____, located in the nucleus of eukaryotic cells.
5. Analyze the structure of a chromosome by creating a diagram of a single chromosome with two sister chromatids. Label ALL of the following: chromosome, sister chromatids, centromere, and gene.



6. Contrast the packed structure of DNA in the nucleus by completing the table below.

	Chromatin	Condensed Chromosomes
What is it?	Is one of the two duplicated chromosomes	Condensed DNA
Where is it located in the cell?	It is located in the nucleus of a cell	In the nucleus
When is it present in the cell?	During replication	During mitosis



8. Using the illustration you created above, evaluate the following sentences by explaining why each is incorrect.

“Chromosomes are replicated during the G1 phase of the cell cycle.”

____yes this is true

“Cells spend most of their time in the mitotic phase of the cell cycle.”

Yes this is true

“The cytoplasm of the cell is divided during interphase of the cell cycle.”

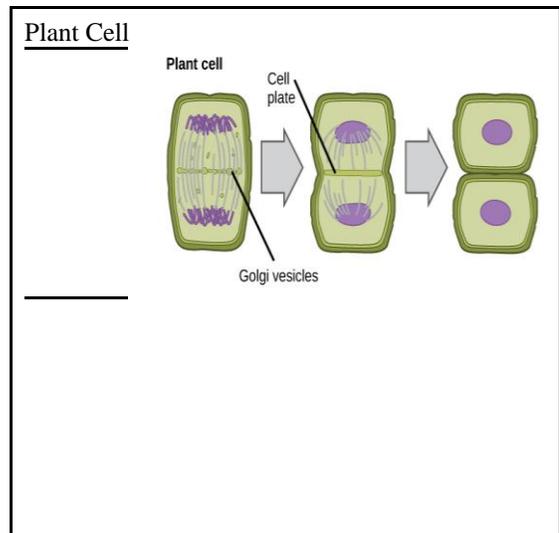
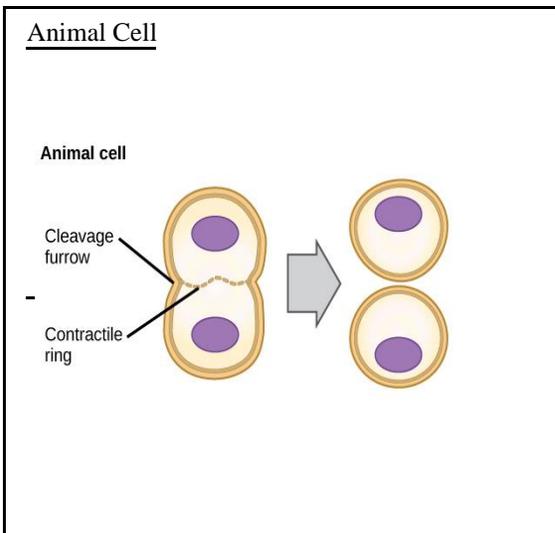
Yes this is true

Last Name: _____ First Name: _____ Date: _____ Class: BIO3 Section: _____

9. Comprehend the activities that occur during each part of **mitosis** by listing the events taking place and illustrating what an animal cell looks like under a microscope during that particular phase.

Mitotic Phase	Activities	Illustration
Prophase	<ul style="list-style-type: none"> Nuclear envelope breaks down DNA condenses Mitotic spindle forms 	
Metaphase	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Chromosomes are aligned at the equatorial planes </div>	
Anaphase	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Sister chromatids separate Daughter chromosomes move towards the poles </div>	
Telophase	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Daughter chromosomes reach the poles Forms two new nuclei </div>	

10. Contrast the differences in cytokinesis between plant and animal cells by illustrating.



Using your illustrations, explain the differences in cytokinesis between plant and animal cells.

_____ What is the difference between plant and animal cell cytokinesis? Because the animal cell doesn't have a cell wall, it pinches in the middle. In a plant cell because of the wall, a cell plate is formed between the divided nuclei.

11. Comprehend the function of **meiosis** by completing the table below.

Meiosis	
What cells are produced as a result of meiosis?	gametes
Where does meiosis occur in males?	testicles
Where does meiosis occur in females?	ovaries
How many cells are produced as a result of meiosis?	Four cells
Human somatic cells have 46 chromosomes. How many chromosomes are found in gametes?	23 chromosomes

12. Comprehend the activities that occur during each part of mitosis by listing the events taking place and illustrating what an animal cell looks like under a microscope during that particular phase.

Meiosis I		
Meiotic Phase	Activities	Illustration
Prophase I	<ul style="list-style-type: none"> • Nuclear envelope breaks down • DNA condenses • Mitotic spindle forms • <u>Crossing over</u> 	
Metaphase I	<div style="border: 1px solid black; padding: 10px; margin: 5px 0;"> Homologous pairs line up at the metaphase plate for separation </div>	
Anaphase I	<ul style="list-style-type: none"> • Homologous chromosomes are pulled to opposite sides of the cell 	
Telophase I	<div style="border: 1px solid black; padding: 10px; margin: 5px 0;"> Cytokinesis occurs forming haploid daughter cells </div>	

Meiosis I		
Meiotic Phase	Activities	Illustration
Prophase II	<ul style="list-style-type: none"> • Nuclear envelope breaks down • DNA condenses • Mitotic spindle forms 	
Metaphase II	<p style="text-align: center;">the chromosomes line up individually along the metaphase plate.</p>	
Anaphase II	<ul style="list-style-type: none"> • Sister chromatids are pulled to opposite sides of the cell 	
Telophase II	<p>Nuclear membranes form around each set of chromosomes, and the chromosomes decondense. Cytokinesis splits the chromosome sets into new cells, forming four haploid cells in which each chromosome has just one chromatid.</p>	