

Mitosis and Meiosis Webquest

Biology

Name: _____

Date: _____ Period: _____

Objective: In this activity, you will use the following web pages to examine the processes of mitosis and meiosis. Both of these processes are important in homeostasis as well as human reproduction.

PART A: Cell Growth and Mitosis

Please go to the following webpage: <http://plaza.ufl.edu/alallen/pgl/modules/rio/stingarees/module/index.html>

1. What is the function of the cell membrane related cell division? _____
2. What is the role of the nucleus in cell division? _____
3. What is the role of the centrioles in cell division? _____
4. What is the role of the microtubules in cell division? _____

Click on the tab, "Why Must Cells Divide?"

5. Why are cells limited in size? _____
6. *Click on the animation.* A cell with 2cm sides has what surface area? _____ What volume? _____
7. What would be the surface to volume ratio? _____
8. A cell with a large volume will have a more difficult time doing what? _____

Click on the tab, "What Does Mitosis Do?"

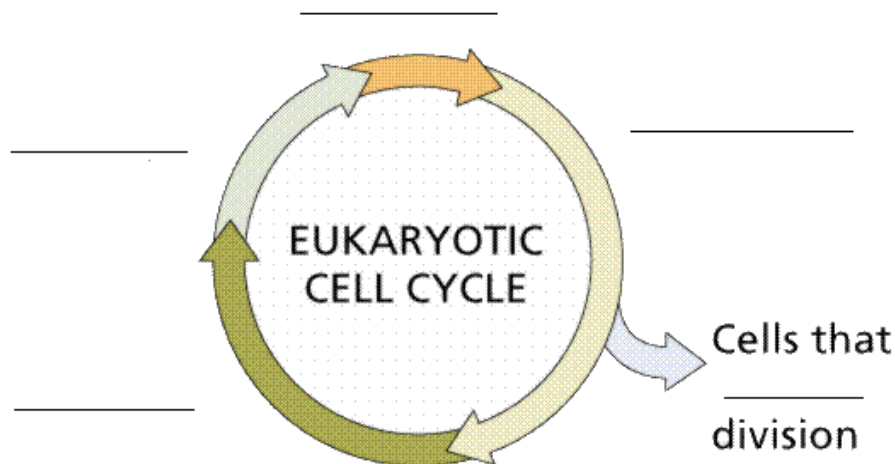
9. What are the 2 major functions of mitosis? _____

Click on the tab, "Built-in Controls in Mitosis"

10. What are the 2 ways that cells "know" to stop dividing? _____

Please go to the following webpage: <http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookmito.html>

11. What ends the cell division process where one cell splits from the sister cell? _____
12. Some cells divide rapidly. Example? _____
Some cells do not divide at all after maturity. Example? _____
13. What is the result of binary fission (genetically the same or different)? _____
14. What is the genetic relationship between resulting cells in mitosis (genetically the same or different)? _____
15. Label the following steps of mitosis:



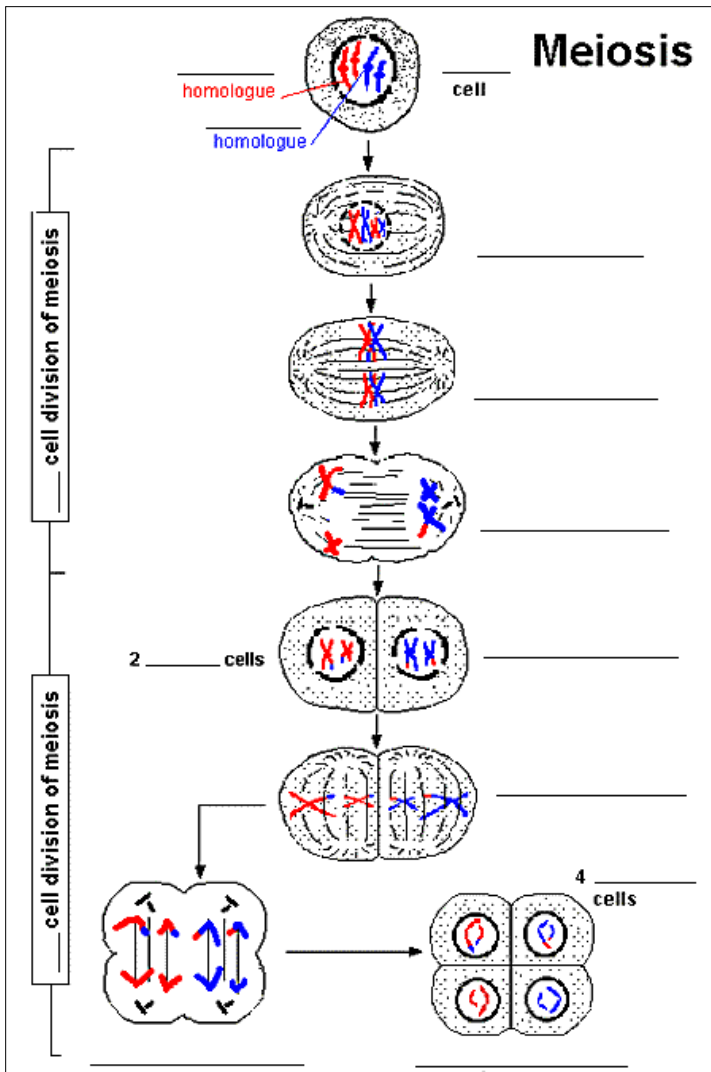
PART B: Meiosis

Please go to the following webpage: <http://www.lewport.wnyric.org/jwanamaker/animations/meiosis.html> or <http://www.cellsalive.com/meiosis.htm>

16. Why is the meiosis important? _____
17. *Start the animation.* What do the chromosomes do in Prophase 1? _____
18. Compare how chromosomes line up on the equator (for separation) in Metaphase 1 and 2?

19. In which phase are the number of chromosomes divided in half as a reduction division(Meiosis 1 or 2)?

20. Label the following steps of Meiosis: <http://www.accessexcellence.org/RC/VL/GG/meiosis.html>



PART C: Comparing and Contrasting Mitosis and Meiosis

- http://www.biology.arizona.edu/CELL_BIO/tutorials/meiosis/problems.html
- <http://www.cellsalive.com/meiosis.htm>
- <http://www.stolaf.edu/people/giannini/flashanimation/celldivision/meiosis.swf>
- <http://www.pbs.org/wgbh/nova/baby/divide.html#>

After visiting the following web pages, compare and contrast mitosis and meiosis.

Then, fill in the following Venn Diagram of the terms listed below.

Terms:

- | | |
|---------------------------------------|---------------|
| Asexual reproduction | Haploid |
| Sexual reproduction | Diploid |
| Same Chromosome number | Sex cells |
| Different Chromosome number | somatic cells |
| One part to cell division | cell division |
| Two parts to cell division (I and II) | growth |
| Example: Bacteria reproduction | repair |
| Example: Human reproduction | |

chromosomes

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