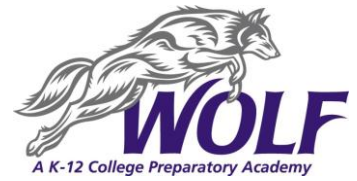


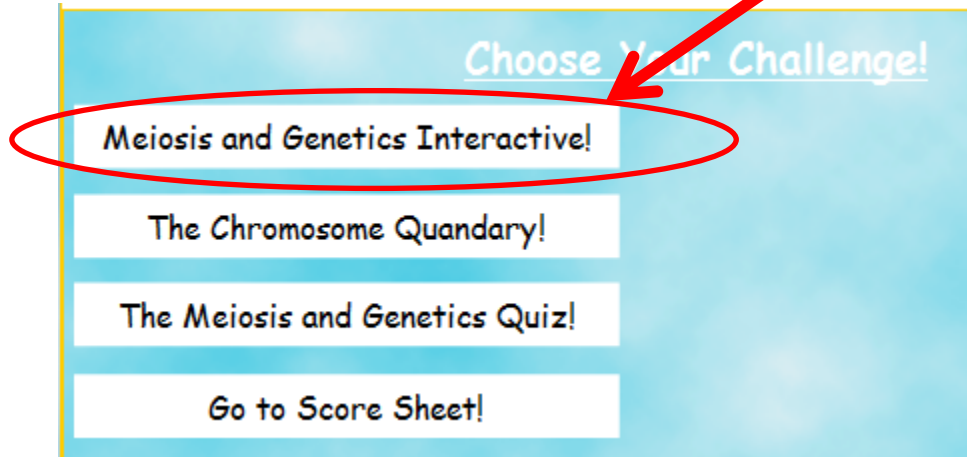
Meiosis Portfolio



Click the following [link](http://www.biomanbio.com/GamesandLabs/Genegames/snurfle_meiosis_and_genetics.html) to get to the simulation that will accompany this worksheet. If the link does not work, you can copy/paste the following web address into your browser:

http://www.biomanbio.com/GamesandLabs/Genegames/snurfle_meiosis_and_genetics.html

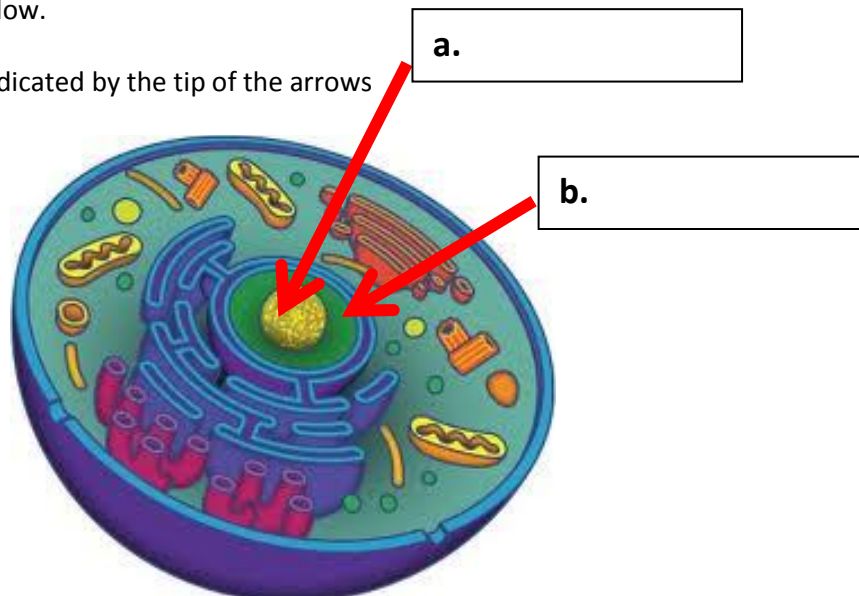
Next, click on “Meiosis and Genetics Interactive!” to start the simulation.



Read the information on each frame of the activity then perform the described action. Consider adding to your notes, especially if you find a topic to be particularly unclear to you. Don't be afraid to refer back to your online textbook.

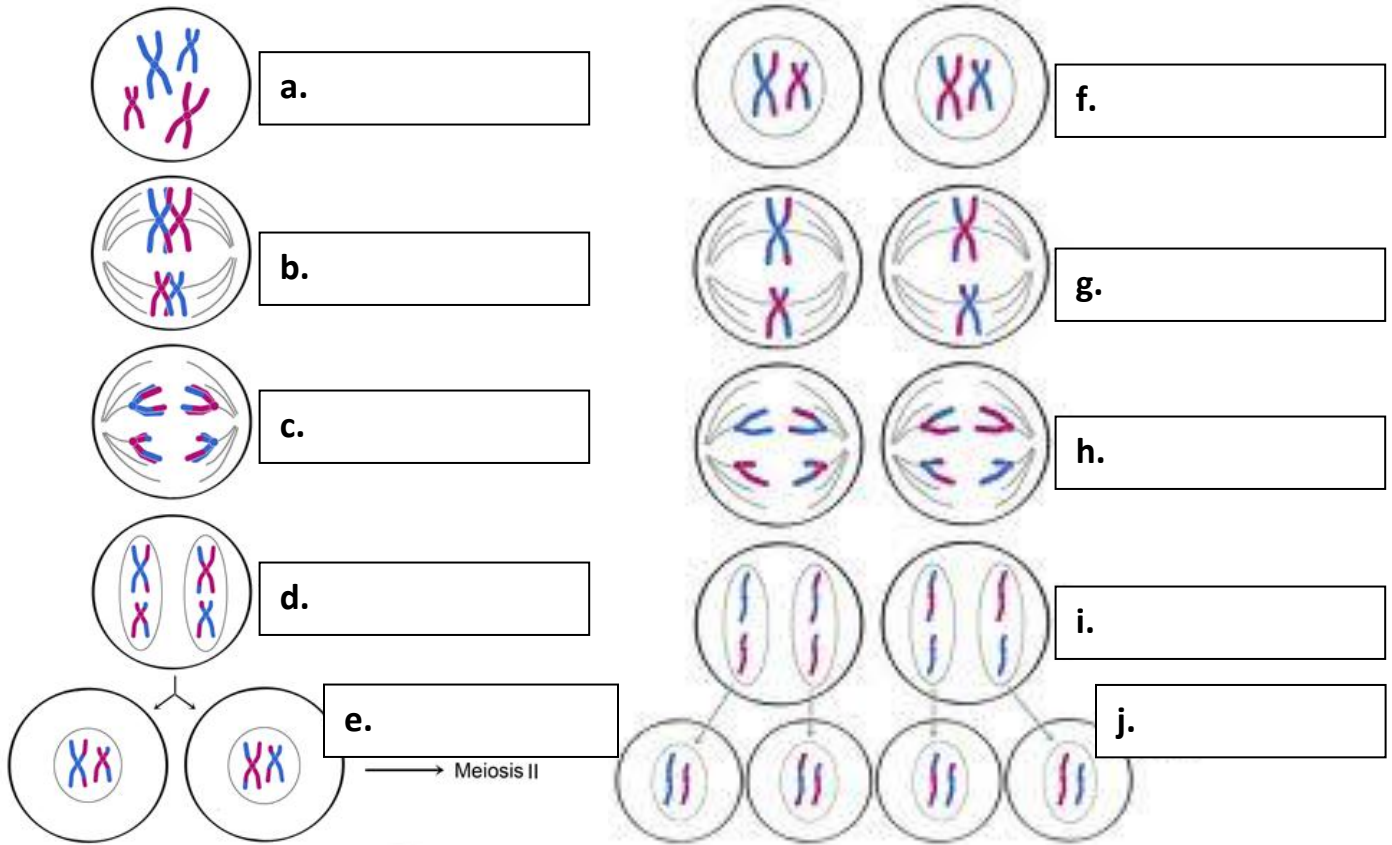
For this Portfolio, you will be using the simulation, your textbook, and the information you have covered in this Unit in order to complete the worksheet below.

1. Label the parts of the cell indicated by the tip of the arrows for letters a and b.



2. What is uncoiled, stringy DNA called? How does this form of DNA compare to chromosomes?
3. How many chromosomes/ pieces of chromatin are in the nucleus of the majority of human body cells?
 - a. How many of these chromosomes came from your mother?
 - b. How many came from your father?
4. What is an allele? Give 3 examples of alleles that humans might carry for hair color.
5. Why do cells undergo MITOSIS (e.g. what is the goal or result)?
6. Why do cells undergo MEIOSIS (e.g. what is the goal or result)?

7. Label the following diagrams with the appropriate name of the phase of meiosis. Remember that a cell undergoing meiosis goes through 2 different rounds of each phase and that you need to distinguish between the first and second round by specifying with a I or II.



8. Meiosis increases genetic diversity

- a. What is a tetrad?
- b. What occurs during the tetrad formation?
- c. How does this affect genetic diversity?

9. Ploidy

- a. What is the haploid number for human body cells? (Hint: refer to your answer to question 3)
- b. What is the diploid number for human body cells? (Hint: refer to your answer to question 3)

10. Summary of Meiosis

- a. How many cells result from meiosis?
- b. Are they haploid or diploid?
- c. What are these cells called when they are produced by a female?
- d. What are these cells called when they are produced by a male?

11. Punnet Square

- a. A purple butterfly (BB) and a blue butterfly (bb) mate. Complete the Punnet Square then answer the questions that follow.

- i. What percentage of offspring would you expect to be heterozygous?
- ii. What percentage of offspring would you expect to be homozygous dominant?
- iii. What is the phenotype of a homozygous recessive butterfly?
- iv. What is the phenotype of a heterozygous butterfly?
- v. What is the genotype of a homozygous dominant butterfly?