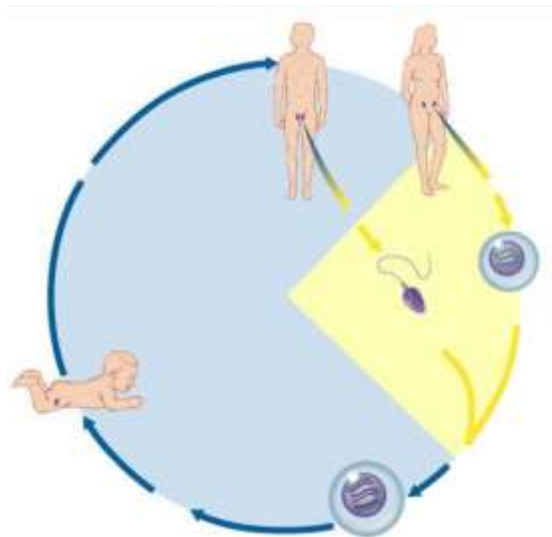


# RAVEN CHAPTER 11 GUIDED NOTES: SEXUAL REPRODUCTION & MEIOSIS

## Raven 9<sup>th</sup> edition

1. Define the following terms.
  - a. gametes \_\_\_\_\_
  - b. somatic cells \_\_\_\_\_
  - c. zygote \_\_\_\_\_
  - d. fertilization \_\_\_\_\_
  - e. diploid \_\_\_\_\_
  - f. haploid \_\_\_\_\_
2. Why is meiosis called “reduction division”? Why is this process necessary for sexual reproduction?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Label the diagram of the human lifecycle. Include the chromosome numbers at each stage.



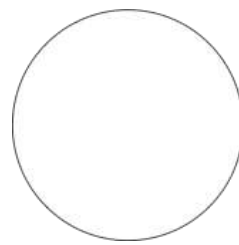
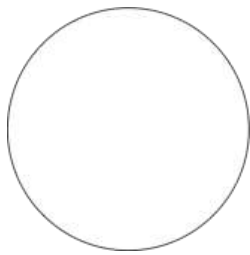
4. Explain synapsis.

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5. Use the diagrams below to distinguish mitosis from meiosis. For an organism where  $2n=4$ , draw a cell at **metaphase of mitosis** and a cell at **metaphase 1 of meiosis**.



**Metaphase of mitosis**

**Metaphase 1 of meiosis**

6. Meiosis is said to be a double division. Explain.

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7. Draw a pair of homologous chromosomes in synapsis and then illustrate a crossing over event and the products of crossing over. Label the chiasmata.

8. At what stage of meiosis does crossing over occur?

9. Compare the products of mitosis with meiosis.

a. Mitosis \_\_\_\_\_

b. Meiosis \_\_\_\_\_

10. Summarize the significant differences between mitosis and meiosis.

11. Meiosis is an important source of variation. Define and describe how each of the following contributes to variation within a species.

a. independent assortment

\_\_\_\_\_  
\_\_\_\_\_

b. crossing over

\_\_\_\_\_  
\_\_\_\_\_

c. random fertilization

\_\_\_\_\_  
\_\_\_\_\_

12. What is the significance of genetic variation to natural selection and evolution?

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\_\_\_\_\_  
\_\_\_\_\_