Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MEIOSIS STUDY GUIDE**

Part A: Vocabulary Matching

\_\_\_\_\_ 1. Chromatin a. two identical chromosomes that have been replicated during interphase

\_\_\_\_\_ 2. Chromosome b. central part holding two sister chromatids together

\_\_\_\_\_ 3. Sister Chromatid c. the form of DNA found beginning in prophase; coiled and condensed

\_\_\_\_\_ 4. Centromere d. organelle in animal cells that anchors the spindle to the poles of the cell

\_\_\_\_\_ 5. Centriole e. the form of DNA found in interphase; uncoiled and disorganized

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\_\_\_\_\_ 6. Haploid a. two homologous chromosomes that have paired up in prophase I of meiosis

\_\_\_\_\_ 7. Diploid b. the full amount of chromosomes; 2 sets; 2N

\_\_\_\_\_ 8. Homologous c. occurs in prophase I of meiosis; homologous chromosomes swap DNA

\_\_\_\_\_ 9. Tetrad d. half of the full amount of chromosomes; 1 set; 1N

\_\_\_\_\_ 10. Crossing-Over e. describes chromosomes that are similar in size and shape

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\_\_\_\_\_ 11. Gametes a. another word for body cells (cells that are not reproductive)

\_\_\_\_\_ 12. Somatic Cells b. the male gamete

\_\_\_\_\_ 13. Ova c. another word for reproductive or sex cells; sperm and egg

\_\_\_\_\_ 14. Sperm d. thread-like fibers that pull chromosomes apart in mitosis and meiosis

\_\_\_\_\_ 15. Spindle e. another word for egg; the female gamete

Part B. Multiple Choice

16. How many divisions does meiosis have?

 a. 1 b. 2 c. 3 d. 4

17. Meiosis results in what kind of daughter cells?

 a. somatic cells b. gametes c. sperm and egg d. both b and c

18. The daughter cells in meiosis are:

 a. haploid b. diploid c. both d. neither

19. The daughter cells in meiosis are:

a. genetically identical to the parent cell b. genetically different from the parent cell

20. How many daughter cells are produced in meiosis?

 a. 1 b. 2 c. 3 d. 4

Part C: Modeling Meiosis

21. For the cells below, draw in the appropriate number of chromosomes in each cell for an organism with a diploid number of 4. Show what the stages of meiosis would look beginning with four chromosomes. You should end up with 2 chromosomes in each of the daughter cells.



Part D. Summary Questions

22. Why, if the parent cell begins with the diploid number of chromosomes, does meiosis need to go through 2 divisions? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. What will the four daughter cells turn into in a male? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. What will the four daughter cells turn into in a female? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. Why do we want the gametes formed to have half of the correct number of chromosomes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_