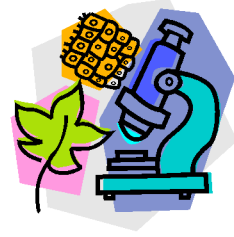


**Roland-Story Biology Class**  
**Chapter 7 Study Guide**  
**Meiosis and Sexual Reproduction**



Name \_\_\_\_\_

1. Explain the significance of meiosis in sexual reproduction.
2. Name the stages of meiosis during which chromatids are separated to opposite poles of the cell.
3. What is crossing-over? During which phase of meiosis does crossing-over occur?
4. Compare the processes of crossing-over and independent assortments.

5. Differentiate gamete formation in male animals from gamete formation in female animals.
6. If one cell in a dog ( $2n = 78$ ) undergoes meiosis and another cell undergoes mitosis, how many chromosomes will each resulting cell contain?
7. Identify the type of reproduction that results in offspring that are genetically identical to their parent.
8. Describe two different types of eukaryotic asexual reproduction.
9. Compare the haploid life cycle found in *Chlamydomonas* with a diploid life cycle.

10. Summarize the process of alteration of generations.

11. Evaluate the significance of mutations and repair of mutations to the evolution of sexual reproduction.

12. What is meiosis?

13. Explain the difference between meiosis I and meiosis II.

14. List the stages of meiosis in the order that they occur.

15. What is crossing-over?

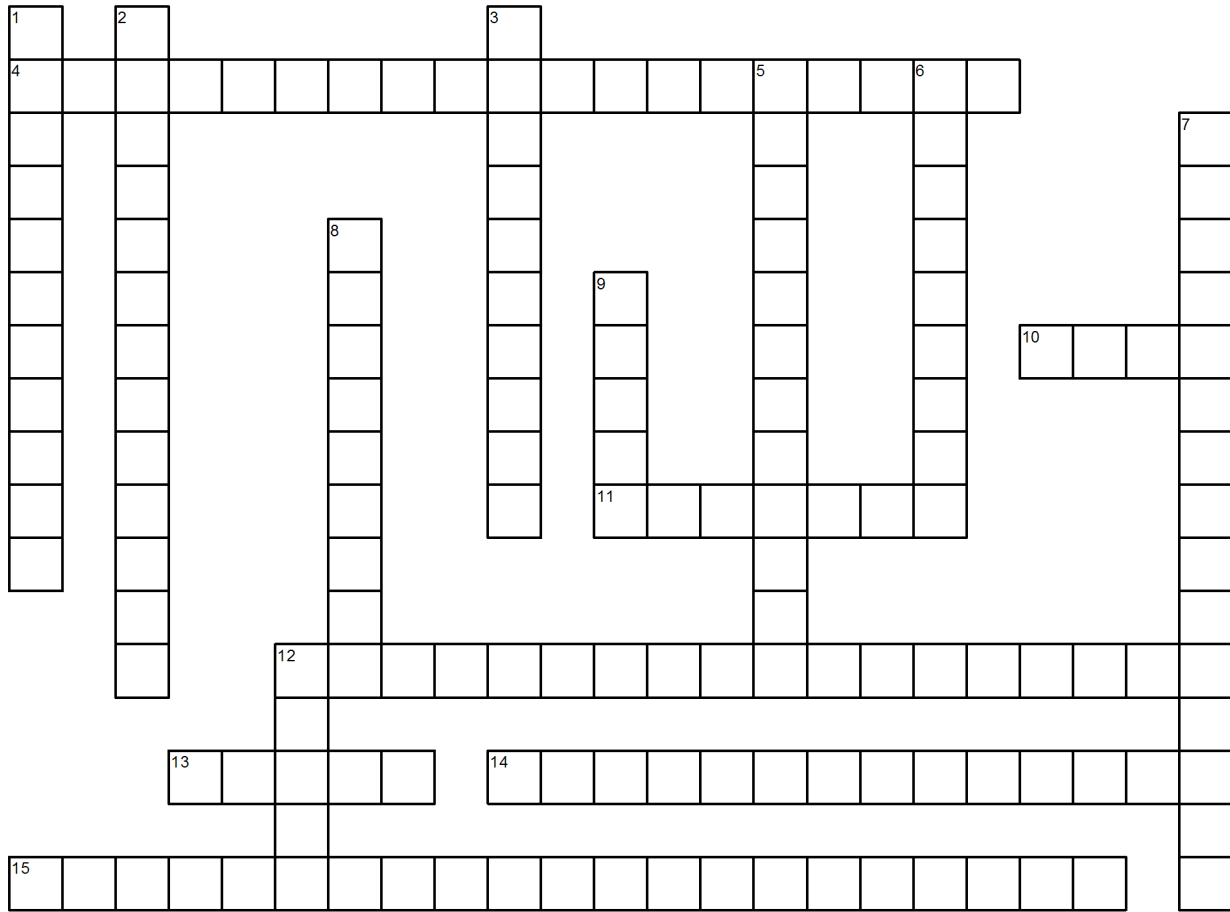
16. What is independent assortment? During which phase(s) of meiosis does independent assortment occur?

17. What are spermatogenesis and oogenesis?

18. What is the difference between undifferentiated sperm cells and sperm?

19. Why does meiosis produce four sperm cells but only one ovum?

20. Crossword puzzle of vocabulary words.



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**Clues are on next page**

## ACROSS

- 4 reproduction in which gametes do not join and in which a single parent makes offspring that are genetically identical to the parent
- 10 a mature egg (sex cell)
- 11 a type of cell division that halves the number of chromosomes; during meiosis, the nucleus divides twice and sex cells (gametes or spores) are made
- 12 reproduction in which gametes from two parents join
- 13 a living organism that is made by asexual reproduction and that is genetically identical to its parent; to make one or more genetic copies of an individual or a cell
- 14 have both male and female reproductive organs
- 15 a process during cell division in which pairs of genes on different chromosomes are randomly distributed to the gametes

## DOWN

- 1 in alternation of generations, the phase in which gametes form; a haploid individual that produces gametes
- 2 the union of a male gamete and a female gamete to form a zygote
- 3 in plants and algae that have alternation of generations, the diploid individual or generation that makes haploid spores
- 5 the exchange of DNA between homologous chromosomes during meiosis; crossing-over can result in genetic recombination
- 6 the making, growth, and maturation of an egg, or ovum
- 7 the process by which male gametes form
- 8 the events in the reproduction, growth, and development of living things from one generation to the next
- 9 the male gamete (sex cell)
- 12 a reproductive cell or multicellular structure that is resistant to environmental conditions and that can develop into an adult without joining with another cell