

General Biology –Chapter 10 Review

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This review is meant to highlight basic concepts from Chapter 10. It does not cover all concepts presented by your instructor. Refer back to your notes, unit objectives, labs, handouts, etc. to further prepare for your exam.

1. What is the central purpose of meiosis? What type of cells does meiosis produce?
2. What is the fate of the daughter cells from meiosis?
3. What processes occur during meiosis that lead to genetic variation among individuals? Why is genetic variation important within a species?
4. At which stage of meiosis does the cell transition from diploid to haploid?
5. Compare and contrast mitosis and meiosis.
6. How is interkinesis different from interphase?

Matching: Meiosis terms

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| 7. _____ $2n$ – refers to a cell which contains 2 of each type of chromosome | 15. _____ The region where non-sister chromatids are attached during crossing over. |
| 8. _____ n – refers to a cell which contains 1 of each type of chromosome | |
| 9. _____ A chromatid and its identical copy | |
| 10. _____ Process in which homologous pairs become closely associated and become a bivalent (tetrad) | a. Bivalent (tetrad) |
| 11. _____ Homologous pairs in synapses | b. Chiasmata |
| 12. _____ Random arrangement of tetrads at metaphasal plate. | c. Crossing over |
| 13. _____ Swapping of genetic material between 2 homologous chromosomes during synapsis | d. Diploid |
| 14. _____ The maternal and paternal pair of a particular chromosome (or pair of sister chromatids). | e. Haploid |
| | f. Homologous chromosome |
| | g. Independent assortment |
| | h. Sister chromatid |
| | i. Synapsis |

Fill in the blank/True or False: Meiosis (if false, what makes the statement true?):

16. Homologous chromosomes have identical alleles for all traits. True or False?
17. Homologous chromosomes exchange genetic material between non-sister chromatids during meiosis I. True or False?
18. Chromosomes line up single-file at the metaphasal plate during Meiosis I. True or False?
19. If a cell contains 44 chromosomes at the end of Meiosis I, the daughter cells at the end of Meiosis II will contain 44 chromosomes. True or False?
20. Crossing over of sister chromatids causes genetic variation. True or False?
21. Meiosis produces 2 daughter cells. True or False?

22. If an egg has 16 chromosomes, it will be fertilized with a sperm that has ____ (#) chromosomes to form a _____ with ____ (#) chromosomes.

Matching: The phases of meiosis

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| 23. _____ Homologues separate, the chromosome # is reduced from $2n$ to n | 29. _____ This phase ends with two haploid daughter cells |
| 24. _____ Crossing over occurs | a. Prophase I |
| 25. _____ Independent assortment occurs | b. Metaphase I |
| 26. _____ Short rest period between nuclear divisions. | c. Anaphase I |
| 27. _____ Sister chromatids separate, to become single chromatids | d. Telophase I |
| 28. _____ This phase ends with four haploid daughter cells | e. Interkinesis |
| | f. Anaphase II |
| | g. Telophase II |

Fill in the blank/True or False: The Cycle of Life and Changes in Chromosome Number and Structure (if false, what makes the statement true?):

29. The production of gametes is called _____.
30. Each round Spermatogenesis can produce 4 viable sperm. True or False?
31. Each round of oogenesis can produce 4 viable eggs. True or False?
32. Eggs do not finish Meiosis until a sperm enters the secondary oocyte. True or False?
33. Trisomy 21 is the result of a _____ during meiosis.
34. Cells that contain the correct number of chromosomes is called aneuploidy. True or False?
35. Monosomy means a cell has extra chromosomes. True or False?
36. A karyotype may be performed to identify if babies with Down Syndrome carry other aneuploid conditions. True or False?
37. Turner syndrome is a trisomy of the X-chromosome. True or False?
38. Klinefelter syndrome is a trisomy in which a male carries 2 or more X-chromosomes in addition the Y-chromosome. True or False?
39. A person with Jacobs syndrome is sometimes called a supermale because extra Y-chromosomes are present. True or False?

Matching: Changes in Chromosome Structure

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| 40. _____ A piece of chromosome breaks off and rejoins in the reversed direction | a. Deletion |
| 41. _____ Chromosome pieces are exchanged from one chromosome to another. | b. Duplication |
| 42. _____ Loss of a piece of a chromosome | c. Inversion |
| 43. _____ The same piece of chromosome is repeated | d. Translocation |