***Meiosis - Gamete Production  
ppt Questions***

***Meiosis Facts***

**1. Define meiosis.**

**2. What is the symbol for the diploid number of chromosomes in a cell?**

**3. What is the symbol for the monoploid or haploid number of chromosomes in a cell?**

**4. Is meiosis sexual or asexual reproduction?**

**5. How many times does a cell divide during Meiosis?**

**6. What are the divisions of meiosis called?**

**7. During meiosis, sex cells divide to form \_\_\_\_\_\_\_\_\_\_\_\_.**

**8. Name the 2 gametes.**

**9. How many chromosomes do gametes have compared to a normal body or somatic cell?**

**10. If a human body cell has 46 chromosomes, how many chromosomes do the gametes (egg and sperm) have?**

**11. Where does meiosis occur in the body in males? in females?**

**12. Testes and ovaries are known as \_\_\_\_\_\_\_\_\_\_\_\_.**

**13. Meiosis in males is called \_\_\_\_\_\_\_\_\_\_\_\_\_ and produces \_\_\_\_\_\_\_\_ cells.**

**14. Meiosis in females is called \_\_\_\_\_\_\_\_\_\_\_\_\_ and produces \_\_\_\_\_\_\_\_ cells.**

**15. a. Make a sketch of a diploid (2n=46)  sperm cell in Meiosis I and Meiosis II.**

**b. Make a sketch of a diploid (2n=46)  egg cell in Meiosis I and Meiosis II.**

***Meiosis I***

**16. Name the 1st stage of meiosis.**

**17. When are chromosomes (DNA) replicated?**

**18. Each duplicated chromosome consists of a pair of \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.**

**19. What attaches sister chromatids to each other?**

**20. What two structures in the center of a cell are visible at the beginning of Interphase I?**

**21. Name the 4 stages of Meiosis I.**

**22. What is the longest phase of meiosis? What pwercent of the division time is this?**

**23. During Prophase I, what happens to chromosomes?**

**24. \_\_\_\_\_\_\_\_\_\_ occurs after chromosomes condense.**

**25. Explain synapsis.**

**26. What is a tetrad?**

**27. A tetrad is made of \_\_\_\_\_\_\_\_ sister and two, nonsister \_\_\_\_\_\_\_\_\_\_\_\_.**

**28. Sketch a tetrad.**

**29. What is meant by homologous chromosomes?**

**30. Homologous chromosomes form a \_\_\_\_\_\_\_\_ during Prophase I.**

**31. Homologs carry \_\_\_\_\_\_\_\_\_ controlling the \_\_\_\_\_\_\_\_ inherited traits.**

**32. What is a locus?**

**33. What is true about the loci of genes on homologous chromosomes?**

**34. Humans have \_\_\_\_\_\_\_ pairs of homologous chromosomes.**

**35. What are autosomes?**

**36. What is the last pair of chromosomes called?**

**37. What is the chromosome pair for a female?  a male?**

**38. Sketch a tetrad and show the location of two different genes on the chromatids.**

**39. Define crossing over.**

**40. Crossing over creates \_\_\_\_\_\_\_\_\_\_ in the chromosomes.**

**41. The sites where crossing over occurs are called \_\_\_\_\_\_\_\_\_\_.**

**42. Crossing over occurs between \_\_\_\_\_\_\_\_\_\_ chromatids.**

**43. Sketch a tetrad with crossing over occurring. Label the chiasmata.**

**44. Sketch a tetrad where crossing over occurred and shade the sections of the chromosomes that were exchanged causing variation.**

**45. Compare the size of an X and a Y chromosome.**

**46. Spindle and aster fibers form from centrioles during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in humans.**

**47. What is the shortest meiotic stage?**

**48. What happens to the tetrads during Metaphase I?**

**49. When the chromosome pairs of the tetrad separate, they move \_\_\_\_\_\_\_\_\_\_\_\_ to the opposite poles of the cell.**

**50. This random separation of homologs is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.**

**51. What effect does independent assortment have on cells?**

**52. Give the formula for determining the number of variations in cells.**

**53. If 2n=6, how many combinations are possible?**

**54. How many different combinations of sperm are possible in a human male?**

**55. What happens to homologous chromosomes during Anaphase I?**

**56. Do sister chromatids separate? Explain.**

**57. How many chromosomes are at the poles in telophase I?**

**58. In humans, the haploid number is \_\_\_\_\_\_\_\_\_.**

**59. \_\_\_\_\_\_\_\_\_\_\_\_ occurs at the end of Telophase I forming \_\_\_\_\_\_\_ new daughter cells.**

***Meiosis II***

**60. Is DNA replicated again before Meiosis II?**

**61. Name the stages of Meiosis II.**

**62. What occurs during Prophase II?**

**63. Where are the sister chromatids during Metaphase II?**

**64. During what stage do sister chromatids separate from each other?**

**65. During Telophase II, the \_\_\_\_\_\_\_\_\_\_\_\_\_ and nucleolus reform.**

**66. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs again at the end of Telophase II forming \_\_\_\_\_\_\_\_\_\_ new daughter cells.**

**67. The 4 new cells at the end of Telophase II are \_\_\_\_\_\_\_\_\_\_\_\_\_ or 1n cells.**

**68. In spermatogenesis, the newly formed gametes are called \_\_\_\_\_\_\_\_\_\_\_\_.**

**69. In Oogenesis, the newly formed gametes are called \_\_\_\_\_\_\_\_\_\_\_\_.**

***Variation***

**70. What is another name for variation?**

**71. Why is variation important?**

**72. Which individuals are most likely to survive & reproduce in a population?**

**73. What is this process known as?**

**74. Name the 3 sources of genetic variation that occur in sexual reproduction and tell when EACH occurs.**

**75. If a diploid cell is 2n=20, what will be the 1n number of the daughter cells?**

**76. How many daughter cells will there be at the end of meiosis?**

**77. What is a karyotype?**

**78. Where are the autosomes found on a karyotype?**

**79. Where are the sex chromosomes found?**

**80. How does a karotype of a Down Syndrome child look?**

**81. What is a zygote?**

**82. What process produces zygotes?  What cells join or fuse?**