Meiosis Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Meiosis is the process of \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Meiosis provides the cells needed to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These cells are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cells.

2. Every \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. Where are chromosomes found?

4. Chromosomes contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This determines what?

5. The chromosomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ isn’t related to its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. Chromosomes come in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pairs. One pair from your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and one pair from your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7. Why are your chromosome pairs called homologous?

8. Why is the information found in *your* chromosomes different from your parents?

9. In order to function properly your cell must have what?

10. What is a diploid cell?

11. Almost \_\_\_\_\_\_\_\_\_\_ of the cells in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_body are diploid. Give some examples of cells that are diploid in the human body:

12. What do scientist refer to as the diploid chromosome number? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. If humans have 23 chromosomes what is the diploid chromosome number?\_\_\_\_\_\_\_\_\_\_

14. If fruit flies have 4 pairs of chromosomes what is its diploid chromosome number?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. If a cell had only one type of chromosome in it what is it called?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. Why is meiosis so important?

17. Where do you find meiosis cell division occurring?

18. What are the reproduction cells called?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Meiosis divided a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cell into \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells.

20. A haploid has \_\_\_\_\_\_\_\_\_\_\_the chromosomes as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cell.

21. What are these special germ cells called?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. At the end of meiosis each special gamet in humans has \_\_\_\_\_\_\_\_\_\_\_chromosomes.

23. If a guinea pig has 64 chromosomes in each of its diploid cells what would be it’s haploid number?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Hint: 2N=64)

24. Why is it important for the gamet to have half the number of chromosome?

25. Two fused germ cells create a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with \_\_\_\_\_\_ sets of chromosomes.

26. A zygote is a female germ cell that has been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_by a male germ cell.

27. What do you get from a zygote?

28. In Mitosis the original cell is called the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cell. The original chromosome pairs as\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_chromosomes and the new chromosome as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_chromosome. And the new cells as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cells.

29. Remember what the resting phase of mitosis is called?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30, The four stages of Mitosis are:

a.

b.

c.

d.

MEIOSIS MITOSIS

\_\_\_\_\_\_ Divisions \_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_ Daughter Cells \_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ Exchange \_\_\_\_\_\_\_\_

DNA

\_\_\_\_\_\_\_\_\_\_\_\_ Cells \_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_ Chromosomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32. During \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and DNA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

to produce another complete set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

33. During Prophase I the genetic information untangles from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

to form into condensed chromosomes. The chromosomes become \_\_\_\_\_\_\_\_\_\_\_\_\_ and

match up. They pair up with their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to form tetrads. Where do they

join at?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. How many chromatids does each

chromosome have?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What forms at the poles?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and

what do they produce?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What happens to the nuclear

membrane start to do?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

34. During Metaphase the tetra (chromosomes) line up where?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What do they then do?

35. Why does the exchange of genetic information occur?

36. In Anaphase I the tetrads (chromosomes) are pulled apart by what?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Why is this important?

37. During Telophase I the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_reforms around the 2 sets of chromosomes. Why is this important?

38. What is the process that completes the division of one cell into two cells called?

39. What is the result of that process?

40. In Meiosis II during Prophase II the chromatids are still in \_\_\_\_\_\_\_\_\_\_\_ attached to the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

41. In Metaphase II the chromatids line up in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The spindle

fibers are still attached to the centromeres of each chromosome \_\_\_\_\_\_\_\_\_\_\_\_\_.

42. What happens to the nuclear membrane here?

43. In Anaphase II the \_\_\_\_\_\_\_\_\_\_\_\_\_\_fibers pull pairs where?

44. The key difference from Mitosis happens during this phase. Remember how one chromosome of each pair was from the mother and the other from the father. Now

each chromosome is sorted \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to each pole. Why?

45. During Telophase II the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_membrane forms around the \_\_\_\_\_\_sets of daughter cells. The cytoplasma and organelles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and the cell membrane divides in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

46. What is the end result after the last phase of Meiosis?

47. To recap: At the end of phase I of Meiosis you have \_\_\_\_\_\_\_\_\_cell becomes \_\_\_\_\_\_\_cells. which also divide to produce \_\_\_\_\_\_\_cells.

48. Each new cell that is created is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_cell. The chromosome number will be restored during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and there will be even more genetic mixing.

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

QUIZ TIME: Do not shout out any answers. You must take this quiz alone.

1. The division of cells to create germ cells is called\_\_\_\_\_\_\_\_\_\_\_\_.

a. mitosis

b. cytokinesis

c. diploid split

d. meiosis

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ True/False: During meiosis, only one cell division takes place.

3. \_\_\_­­­\_\_\_\_\_Homologous means:

a. same trait with different information

b. same trait with same information

c. different traits with same information

d. different traits with different information

4. Chromosomes contain\_\_\_\_\_\_\_\_.

a. cells

b. diploid cells

c. genes, or genetic information

d. zygotes

5. \_\_\_\_\_\_\_\_\_\_\_\_True/False: When germ cells combine, the create life.

6. Meiosis divides one diploid cell into \_\_\_\_\_\_\_.

a. 4 diploid cells

b. 4 haploid cells

c. 2 haploid cells

d. 2 diploid cells

7. A gamete has\_\_\_\_\_\_\_.

a. 23 pairs of chromosomes

b. 46 chromosomes

c. 23 chromosomes

d. A and B

8. A zygote has\_\_\_\_\_\_\_.

a. 1 set of chromosomes

b. no chromosomes

c. 23 chromosomes

d. 2 sets of chromosomes

9. Our traits are determined by\_\_\_\_\_\_\_\_\_.

a. our germ cells

b. our homologous cells

c. our chromosomes

d. none of the above

10. A germ cell is\_\_\_\_\_\_\_\_.

a. haploid

b. diploid

c. triploid

d. sometimes haploid, sometimes diploid, never triploid

QUIZ TIME 2

11. Crossing over is when:

a. exchange DNA strands

b. entangle

c. split

d. form sister chromosomes

12. Meiosis II \_\_\_\_\_\_\_\_\_the number of chromosomes of the parent cell.

a. maintains

b. doubles

c. reduces

d. triples

13. True/False (circle one) In meiosis, the resulting cells have 23 pairs of chromosomes.

14. When the cytoplasm and organelles divide at the end of meiosis I, it is called\_\_\_\_\_\_\_\_\_\_\_\_.

a. telophase I

b. cytokinesis

c. telekinesis

d. metaphase II

15. A tetrad is a chromosome with \_\_\_\_\_\_\_\_\_.

a. two chromatids

b. four chromatids

c. no chromaitds

d. none of the above

16. Which is the very last phase of meiosis?

a. metaphase II

b. anaphase I

c. telophase II

d. prophase II

17. Crossing over allows for \_\_\_\_\_\_\_\_\_.

a. more cells

b. less cells

c. each daughter cell to be identical

d. each daughter cell to be unique

18. In meiosis II, the two daughter cells are divided into what?

a. two daughter cells with half the number of chromosomes

b. four daughter cells with half the number of chromosomes

c. four cousin cells with different chromosomes

d. none of the above.

19. Tue or false: The random sorting of chromosomes during anaphase II helps create unique gametes.

20. Which of the following are differences between mitosis and meiosis?

a. number of times the cells divide

b. number of chromosomes in the parent cells

c exchange of genetic information

d. A and C