Name _____

Block _____

Meiosis Practice

Match the stage with the correct description of meiosis. Some may have more than one answer. Some stages may be used more than once.

_____ Homologous chromosomes separate.

_____ Centrioles move to opposite poles

_____ Crossing over occurs

_____ Chromatids separate

_____ Homologous chromosomes pair up (called synapsis)

_____ Nuclear membrane reappears

_____ Chromosomes align in the middle

_____ Results in haploid cells

_____ Nuclear membrane disappears

_____ Homologous chromosomes align in the middle

Prophase 1 (P1)
Metaphase 1 (M1)
Anaphase 1 (A1)
Telophase 1 (T1)
Prophase 2 (P2)
Metaphase 2 (M2)
Anaphase 2 (A2)
Telophase 2 (T2)

Use the terms below to fill in the blanks. Each term is used once.

23	Crossing over	Haploid
46	Different	Histones
Centromere	Diploid	Identical
Chromatin	Gametes	Spindle fibers

1. Meiosis is a type of division that produces _____.
2. Meiosis results in four _____ cells that are genetically _____.
3. Mitosis results in two _____ cells that are genetically _____.
4. The process of chromosomes overlapping to exchange genetic information is known as _____ _____.
5. The _____ _____ attach to the _____ in metaphase 1 to allow for the separation of homologous chromosomes.
6. Chromosomes are tightly condensed _____, which is made of DNA wrapped around protein molecules called _____.
7. Human diploid cells, such as skin cells, have _____ chromosomes, while human haploid cells, like sperm, have _____ chromosomes.

Short Answer: Use complete sentences to answer the following question.

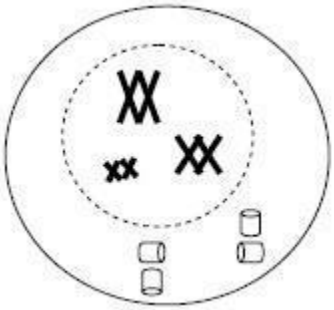
8. Why is crossing over such an important process of meiosis?

Name _____

Block _____

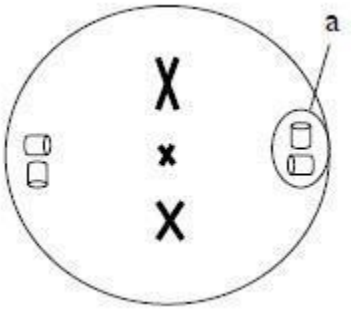
Answer the questions in each "BOX".

Box A



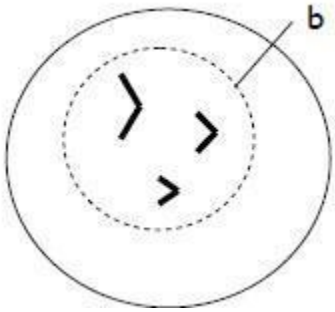
1. Name the phase shown in the picture.
2. What are the 2 X's next to each other called?

Box B



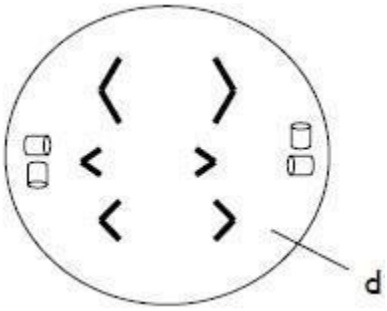
1. Name the phase shown in the picture.
2. What structure is labeled letter a?

Box C



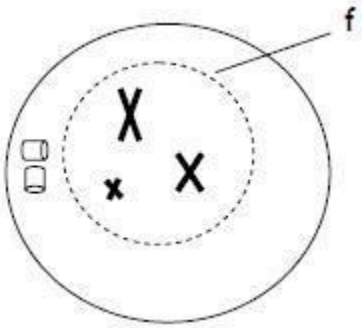
1. Name the phase shown in the picture.
2. What is half of an X called?

Box D



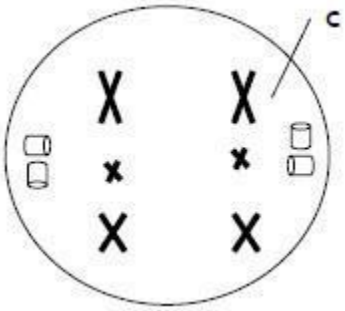
1. Name the phase shown in the picture.
2. What structure is missing at letter d? (this structure will connect to the centromere to pull it toward the pole)

Box E



1. Name the phase shown in the picture.
2. What is the name of the structure labeled f?

Box F



1. Name the phase shown in the picture.
2. How is this phase different from the phase in box D?

Name _____

Block _____

1. Which type of cell undergoes meiosis? Germ cells or Somatic cells

2. What are homologous chromosomes?

3. For each of the following state if the cell is haploid or diploid.

Sperm cell = Liver cell = Egg cell = Stomach cell =

4. If the diploid number in a liver cell is 52, how many chromosomes are there in the egg of this organism?_____

5. During meiosis, the chromosome number:

a) is doubled b) is reduced by half c) remains the same d) becomes diploid

6. Cells starting mitosis & meiosis begin with a (haploid or diploid) set of chromosomes.

7. Does replication happen in interphase before mitosis? _____ Before meiosis? _____

8. What are the stages of meiosis called?

Meiosis I: _____, _____, _____, _____

Meiosis II: _____, _____, _____, _____

9. During which phase do homologous chromosomes pair up?_____

10. Which of the following best describes the term "crossing over"?

a) An exchange of information between two homologous chromosomes
b) A molecular interaction between two sister chromatids
c) A molecular interaction between two non-sister chromatids
d) A separation of two sister chromatids

11. Crossing-over can be found in the stage of

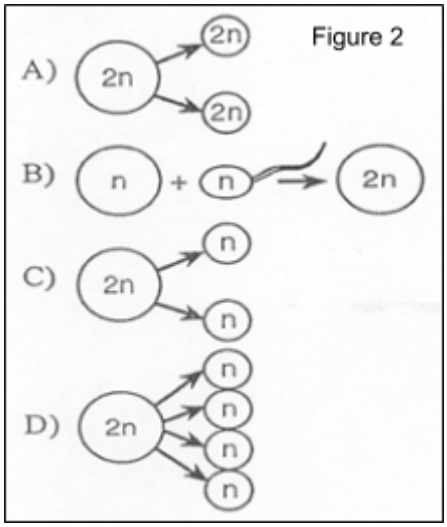
a) Prophase I b) Prophase II

c) Anaphase I d) Anaphase II

12. Which letter in figure #2 to the right represents meiosis? Why?

13. Which letter in figure #2 to the right represents mitosis? Why?

14. Which letter in figure #2 to the right represents fertilization? Why?



15. Is DNA copied between Meiosis I & Meiosis II? _____

16. How many cells form at the end of Meiosis II? _____ How many chromosomes do they contain? _____

17. A sperm cell is a (gamete, zygote) and is (haploid, diploid).

18. When a sperm cell and an egg merge, they undergo the process of fertilization and give rise to a (gamete, zygote) which is (haploid, diploid).

19. How does meiosis differ from mitosis?