Name \_\_\_\_\_\_\_\_\_\_\_\_KEY\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Meiosis Study Guide**

1. What are the two types of reproduction? What is the difference between the two types?

 Sexual- Two parents, offspring are genetically different

 Asexual- One parent, offspring are clones (genetically identical to parent)

1. Draw a picture of a chromosome

1. What are homologous chromosomes?

A pair of chromosomes that have similar shapes, sizes, and genetic information

1. What is the difference between a haploid and diploid cell?

Haploid- one set of chromosomes (N)

Diploid- two set (pair) of chromosomes (2N)

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

 Sperm cell = Haploid

 Liver cell = Diploid

 Egg cell = Haploid

 Stomach cell = Diploid

1. If the diploid number in a liver cell is 52, how many chromosomes are there in the egg of this organism? \_\_\_\_\_\_\_\_\_\_26\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The combination of a \_\_\_\_\_\_\_sperm\_\_\_\_\_\_\_\_\_ and an \_\_\_\_\_\_\_\_\_\_\_egg\_\_\_\_\_\_\_\_ produces a zygote with 46 chromosomes.
3. During meiosis, the chromosome number:

a) is doubled

b) is reduced

c) remains the same

d) becomes diploid

1. Meiosis produces haploid reproductive cells called \_\_\_\_\_\_\_\_\_gametes\_\_\_\_\_\_\_\_\_\_\_\_.
2. Name the 2 human gametes & tell their chromosome number.

Sperm cell = 23 chromosomes- Haploid

 Egg cell = 23 chromosomes- Haploid

1. How many times do cells divide during meiosis?

Twice

1. What are the stages of meiosis called?

 Meiosis I:

Prophase I, Metaphase I, Anaphase I, Telophase I

 Meiosis II:

Prophase II, Metaphase II, Anaphase II, Telophase II

1. What is a tetrad?

 Structure containing 4 chromatids (or 2 homologous chromosomes) that forms during Meiosis

1. Which of the following best describe the term “crossing over”?
	1. An exchange of information between two homologous chromosomes
	2. A molecular interaction between two sister chromatids
	3. A molecular interaction between two non-sister chromatids
	4. A separation of two sister chromatids
2. What type of material is exchanged during crossing-over? \_\_\_\_\_\_\_Genes/ Genetic Material/ DNA\_\_\_\_\_\_\_\_\_\_\_
3. Crossing-over occurs in which stage of meiosis?
	1. Prophase I
	2. Prophase II
	3. Anaphase I
	4. Anaphase II
4. How many cells are formed at the end of Meiosis I & how many copies of chromosomes does each cell have?

Two cells with N chromosomes (For example, in humans each cell would have 23 Chromosomes seen a sister chromatids)

1. Is DNA copied before Meiosis II?

NO!

1. How many cells form at the end of Meiosis II and how many chromosomes do they contain?

Four cells with N Chromosomes (For example, in humans the cells would have 23 Chromosomes)

1. A sperm cell is a (gamete, zygote), and is (haploid, diploid).
2. When a sperm cell and an ovum merge, they undergo the process of fertilization, and give rise to a **(gamete, zygote)**, which is **(haploid, diploid)**.
3. A hypothetical organism has 10 chromosomes for each of its body cells.
	1. Skin cells are continuously being rubbed off and replaced. How many chromosomes will be contained in each new skin cell that is replaced? \_\_\_\_\_\_\_\_\_\_\_\_10\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. This replacement occurs through the process of \_\_\_\_\_\_\_\_Mitosis\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	3. The diploid number (2N) for this organism is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_10\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	4. This organism would have how many homologous pairs of chromosomes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. The mature eggs of this female would contain how many chromosomes? \_\_\_\_\_\_\_5\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_