Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period: \_\_\_\_\_\_\_\_\_



Chapter 11: Meiosis and Sexual Reproduction

***Section 1: Reproduction***

Asexual Reproduction

1. Reproduction is the process of producing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Asexual Reproduction, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ parent passes a complete copy of its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ information to each of its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. An individual formed by asexual reproduction is genetically \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to its parent.

4. An example of an organism that reproduces asexually is a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sexual Reproduction

1. In sexual reproduction, \_\_\_\_\_\_ parents give genetic material to produce offspring that are genetically \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from their parents.

2. Reproductive cells are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. When two gametes fuse together, the resulting cell is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which has a combination of genetic material from both parents. This process is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. What is the advantage of sexual reproduction of a species? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chromosome Number

1. Each chromosome has thousands of \_\_\_\_\_\_\_\_\_ that play an important role in determining how an organism \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. When fertilization of humans occurs, the zygote will contain \_\_\_\_\_\_\_\_ chromosomes. Therefore, the gametes (reproductive cells) must have \_\_\_\_\_\_\_ chromosomes each.

3. Regular body cells with two complete sets of chromosomes (one set from each biological parent) is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_ cell.

4. Gametes (reproductive cells) which have half the normal number of chromosomes are called \_\_\_\_\_\_\_\_\_\_\_\_ cells.

5. Chromosomes that are similar in size, shape and kind of genes are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. Label the Homologous Chromosomes Below.

7. Autosomes are chromosomes with genes that \_\_\_\_ \_\_\_\_\_ determine the \_\_\_\_\_\_\_ of an individual.

8. Sex Chromosomes have genes that determine the \_\_\_\_\_\_\_ of an individual.

9. Males have one \_\_\_\_ and one \_\_\_\_\_ chromosome, while females have two \_\_\_\_\_\_ chromosomes.

10. Use the karyotype (picture of chromosomes below) to label homologous chromosomes, autosomes, and sex chromosomes.

 Male Karyotype Female Karyotype

  

***Section 2: Meiosis***

Stages of Meiosis

1. \_\_\_\_\_\_\_\_\_\_\_\_ is a form of cell division that produces daughter cells with \_\_\_\_\_\_\_\_\_ the number of chromosomes as the parent cell; making gametes (reproductive cells),

2. Before meiosis, the chromosomes of the original cell are \_\_\_\_\_\_\_\_\_\_\_\_. This occurs during interphase (DNA Replication).

3. During Meiosis I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are separated and in Meiosis II the sister chromatids are separated.

*Meiosis I (Notes not directly from book!)*

1. During Meiosis I, homologous chromosomes pair up and crossing over occurs. During crossing over, chromatids exchange \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This occurs during Prophase I of Meiosis I. Crossing over will create genetically \_\_\_\_\_\_\_\_\_\_\_\_\_\_ daughter cells.



2. During Meiosis II, each daughter cell will be divided again by the sister chromatids being pulled apart.

3. The end result of Meiosis is \_\_\_\_\_\_ genetically \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells with \_\_\_\_\_\_\_\_ the number of chromosomes. Human meiosis results in cells with \_\_\_\_\_\_\_ chromosomes.



Comparing Mitosis and Meiosis



Use the figure above and book page 252 to compare the two processes.

|  |  |  |
| --- | --- | --- |
|  | **Mitosis** | **Meiosis** |
| Goal of Process |  |  |
| Type of Cells Made |  |  |
| Number of Cells Made |  |  |
| Genetic Identity of New Cells |  |  |
| Compare Metaphase |  |  |