**11.4 Meiosis**

Chromosome Number

-The diploid cells of most adult organisms contain \_\_\_\_ complete sets of inherited chromosomes and two complete sets of \_\_\_\_\_\_\_\_\_.

-Chromosomes—those strands of \_\_\_\_\_ and protein inside the cell nucleus—are the carriers of \_\_\_\_\_\_\_\_\_\_.

-The genes are located in \_\_\_\_\_\_\_\_\_\_\_\_ positions on chromosomes.

Diploid Cells

-Two sets of chromosomes are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, meaning that each of the four chromosomes from the \_\_\_\_\_\_ parent has a corresponding chromosome from the female parent.

-A cell that contains both sets of homologous chromosomes is \_\_\_\_\_\_\_\_\_\_\_, meaning “two sets.”

  -The diploid number of chromosomes is sometimes represented by the symbol \_\_\_\_\_\_.

Haploid Cells

-Some cells contain only a \_\_\_\_\_\_\_\_\_\_ set of chromosomes, and therefore a single set of genes.

-Such cells are \_\_\_\_\_\_\_\_\_\_, meaning “one set.”

-The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of sexually reproducing organisms are haploid.

Phases of Meiosis

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a process in which the number of chromosomes per cell is cut \_\_\_\_\_\_\_\_\_\_\_ half through the separation of homologous chromosomes in a diploid cell.

-Meiosis usually involves \_\_\_\_\_\_\_ distinct divisions, called meiosis I and meiosis II.

-By the end of meiosis II, the diploid cell becomes \_\_\_\_\_\_ haploid cells.

Prophase I

-As homologous chromosomes pair up and form tetrads, they undergo a process called \_\_\_\_\_\_\_

-First, the chromatids of the homologous chromosomes cross over one another.

-Then, the crossed sections of the chromatids are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Crossing-over is important because it produces \_\_\_\_\_\_ combinations of alleles in the cell.

Gametes to Zygotes

-The \_\_\_\_\_\_\_\_\_\_\_ cells produced by meiosis II are \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-In male animals, these gametes are called sperm. In some plants, pollen grains contain haploid sperm cells.

-In female animals, generally only one of the cells produced by meiosis is involved in reproduction. The female gamete is called an egg in animals and an egg cell in some plants.

Gametes to Zygotes

-Fertilization—the \_\_\_\_\_\_\_\_\_ of male and female gametes—generates new combinations of alleles in a \_\_\_\_\_\_\_\_\_\_\_\_.

- The zygote undergoes cell division by \_\_\_\_\_\_\_\_\_\_ and eventually forms a \_\_\_\_\_ organism.

\*\*Changes in Chromosome Number\*\*

-Mitosis does \_\_\_\_\_\_ normally change the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ number of the original cell.

-Meiosis \_\_\_\_\_\_\_\_\_\_\_\_\_ the chromosome number by \_\_\_\_\_\_\_\_\_\_\_\_.