Name _____ Class _____ Date _____

Skills Worksheet

Active Reading

Section: Meiosis

Read the passage below. Then answer the questions that follow.

Meiosis is a form of cell division that halves the number of chromosomes when forming specialized reproductive cells, such as gametes or spores. Meiosis involves two divisions of the nucleus—meiosis I and meiosis II.

The stages of meiosis I are as follows:

Prophase I: The chromosomes condense, and the nuclear envelope breaks down. Homologous chromosomes pair along their length and then cross over.

Metaphase I: The pairs of homologous chromosomes are moved by the spindle to the equator of the cell. The homologous chromosomes, each made up of two chromatids, remain together.

Anaphase I: The homologous chromosomes separate. As in mitosis, the chromosomes of each pair are pulled to opposite poles of the cell by the spindle fibers. But in meiosis, the chromatids do not separate at their centromeres.

Telophase I: Individual chromosomes gather at each of the poles. In most organisms, the cytoplasm divides, forming two new cells.

SKILL: READING EFFECTIVELY

Match each statement with the stage of meiosis I it describes by writing in the spaces provided, *PI* to represent Prophase I, *MI* to represent Metaphase I, *AI* to represent Anaphase I, or *TI* to represent Telophase I.

_____ 1. cytoplasm divides

_____ 2. nuclear envelope breaks down

_____ 3. homologous chromosomes separate

_____ 4. spindle moves homologous chromosomes to the cell's equator

_____ 5. crossing-over occurs

_____ 6. two new cells form

_____ 7. homologous chromosomes move to opposite poles of the cell

_____ 8. chromosomes condense

Read the passage below. Then answer the questions that follow.

The stages of meiosis II are as follows:

Prophase II: A new spindle forms around the chromosomes.

Metaphase II: The chromosomes line up along the equator, attached at their centromeres to spindle fibers.

Anaphase II: The centromeres divide, and the chromatids (now called chromosomes) move to opposite poles of the cell.

Telophase II: A nuclear envelope forms around each set of chromosomes. The spindle breaks down, and the cell undergoes cytokinesis. The result of meiosis is four haploid cells.

Match each statement with the stage of meiosis II it describes by writing in the spaces provided, *PII* to represent Prophase II, *MII* to represent Metaphase II, *AII* to represent Anaphase II, or *TII* to represent Telophase II.

_____ **9.** centromeres divide

_____ **10.** new spindle forms

_____ **11.** cell undergoes cytokinesis

_____ **12.** chromosomes line up at equator

_____ **13.** spindle breaks down

_____ **14.** chromosomes move to opposite poles of the cell

_____ **15.** four haploid cells form

In the space provided, write the letter of the term or phrase that best completes the statement.

_____ **16.** Between meiosis I and meiosis II, chromosomes do NOT

a. replicate.
b. change position.
c. divide.
d. Both (a) and (b)

Name _____ Class _____ Date _____

Skills Worksheet

Active Reading

Section: Sexual Reproduction

Read the passage below. Then answer the questions that follow.

Some organisms look exactly like their parents and siblings. Others share traits with family members but are not identical to them. Some organisms have two parents, while others have one. The type of reproduction that produces an organism determines how similar the organism is to its parents and siblings. Reproduction, the process of producing offspring, can be asexual or sexual.

In **asexual reproduction,** a single parent passes copies of all its genes to each of its offspring; there is no fusion of haploid cells such as gametes. An individual produced by asexual reproduction is a **clone,** an organism that is genetically identical to its parent. As you have read, prokaryotes reproduce by a type of asexual reproduction called binary fission. Many eukaryotes also produce asexually.

In contrast, in **sexual reproduction,** two parents each form reproductive cells that have one-half the number of chromosomes. A diploid mother and father would give rise to haploid gametes, which join to form diploid offspring. Because both parents contribute genetic material, the offspring have traits of both parents but are not exactly like either parent. Sexual reproduction, with the formation of haploid cells, occurs in eukaryotic organisms, including humans.

SKILL: READING EFFECTIVELY

Read each question, and write your answer in the space provided.

1. Write a sentence that states the main idea of this passage.

_____

_____

2. What is a clone?

_____

_____

3. What is one form of asexual reproduction?

_____

_____

Active Reading *continued*

4. Why do offspring produced through sexual reproduction show traits of each parent?

_____

_____

5. How are sexual and asexual reproduction alike?

_____

_____

6. How are sexual and asexual reproduction different?

_____

_____

An analogy is a comparison. In the space provided, write the letter of the term that best completes the analogy.

_____ 7. Asexual reproduction is to one as sexual reproduction is to
   a. many.
   b. fission.
   c. two.
   d. four.