

Lesson Outline**LESSON 1*****Sexual Reproduction and Meiosis*****A. What is sexual reproduction?**

- _____ produces an offspring when genetic materials from two different sex cells combine.
 - The female sex cell, a(n) _____, forms in an ovary.
 - The male sex cell, a(n) _____, forms in a testis.
- During a process called _____, an egg cell and a sperm cell join together. The new cell that forms is called a(n) _____.

B. Diploid Cells

- Organisms that reproduce sexually make two kinds of cells— _____ cells and sex cells.
- Body cells are _____; they have pairs of chromosomes.
- If a zygote has too many or too few _____, it will not develop properly.
- Different organisms have different _____ of chromosomes.
- _____ are pairs of chromosomes that have genes for the same traits arranged in the same order.

C. Haploid Cells

- Sex cells are _____; they have only one chromosome from each pair of chromosomes.
- In _____, one diploid cell divides and makes four haploid cells.

D. The Phases of Meiosis

- Meiosis involves two divisions of the nucleus and the _____. These divisions, known as meiosis I and meiosis II, result in four haploid cells.
- During _____, the reproductive cell grows and duplicates its chromosomes.
- During meiosis I, each pair of duplicated homologous chromosomes _____.
- After meiosis I, the two cells formed during this stage go through a second division of the _____ and cytoplasm called meiosis II. During meiosis II, sister _____ separate to produce four haploid cells.

Lesson Outline continued

E. Why is meiosis important?

1. Meiosis forms sex cells with the correct haploid number of _____. This maintains the correct _____ number of chromosomes in organisms when sex cells join.
2. Meiosis creates genetic variation by producing _____ cells.

F. How do mitosis and meiosis differ?

1. During _____ and cell division, a body cell and its nucleus divide once and produce two identical cells.
2. During _____, a reproductive cell and its nucleus divide twice and produce four cells—two pairs of identical haploid cells.

G. Advantages of Sexual Reproduction

1. Sexual reproduction produces _____ that have a new combination of DNA. This results in genetic _____ among individuals.
2. Genetic variation gives individuals within a population slight differences that might be an advantage if the _____ changes.
3. _____ breeding has been used to develop desirable traits in plants and animals.

H. Disadvantages of Sexual Reproduction

1. One disadvantage of sexual reproduction is that organisms have to grow and develop until they are mature enough to produce _____ cells.
2. Another disadvantage is that searching for a mate takes time and energy and might expose individuals to predators, _____, or harsh environmental conditions.