

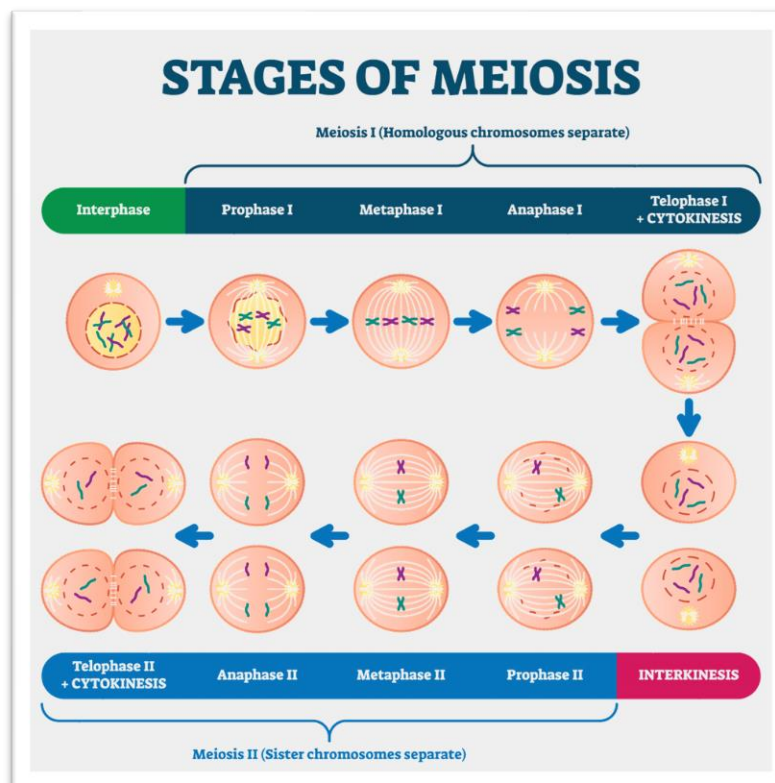
Genetics - The Science of Heredity

Section 4: Meiosis

Meiosis is the process in which the number of chromosomes in each cell is cut in half through the separation of homologous chromosomes in a **haploid** cell. This means this cell contains only one of each kind of chromosome. A **diploid** cell has two of each kind of chromosome. In animals, meiosis occurs in the sex organs, the male testes, and the female ovaries. Whereas Mitosis produces two genetically identical diploid cells, meiosis is a type of cell division that produces four genetically different cells, each with half the number of chromosomes as the parent cells. There are two distinct divisions: Meiosis I and Meiosis II.

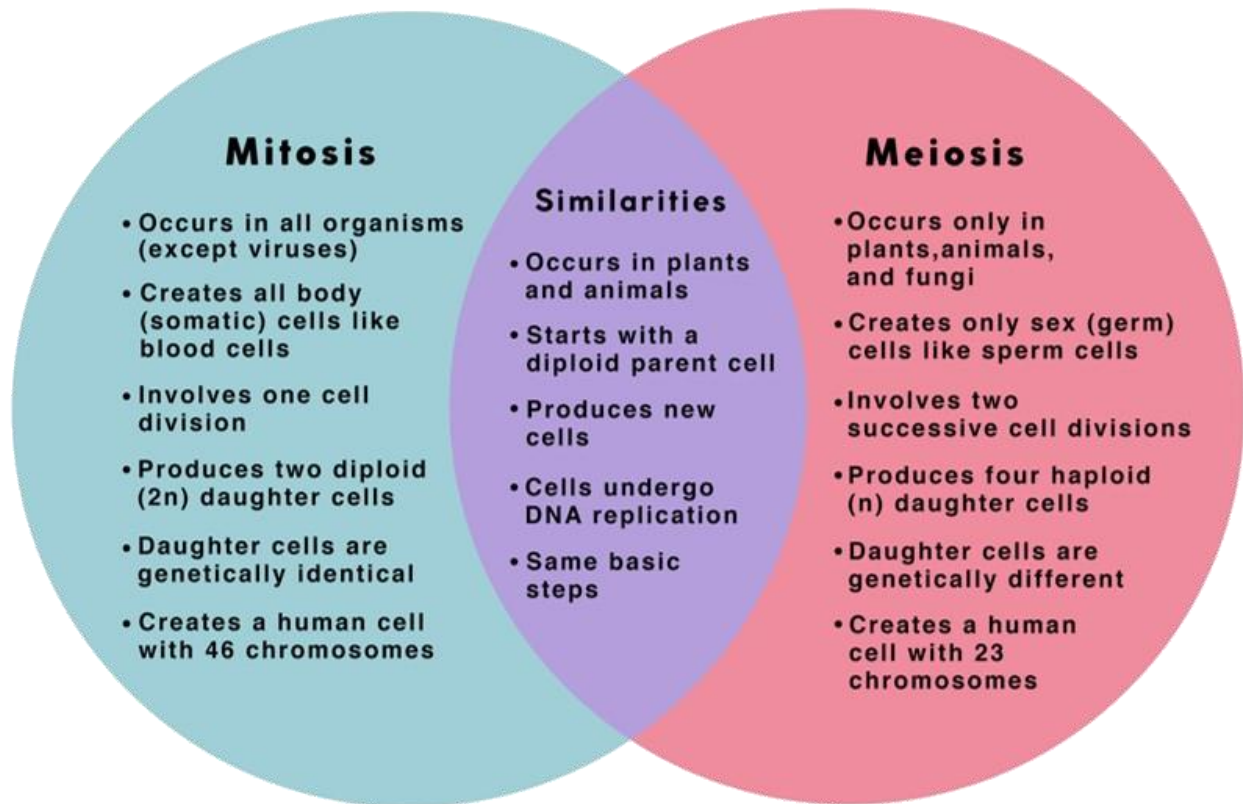
Right before Meiosis I begins, the cell undergoes replication during interphase (a stage of Mitosis). The cell then begins to divide, and the chromosomes pair up. Next, the chromosomes line up across the center of the cell. Then spindle fibers pull each chromosome toward opposite ends of the cell. When the separated chromosomes cluster at the end of the cell, a nuclear membrane forms, and cytokinesis occurs, which results in the formation of two new cells.

Meiosis I results in two daughter cells that now enter a second meiotic division. First, each chromosome becomes visible, and then the chromosomes line up in the center of each cell. The chromatids then separate, and the result is four haploid daughter cells. The four daughter cells have two chromosomes each.



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Section 4: Meiosis Continued



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Review:

1. What is the difference between a haploid cell and diploid cell?
2. How are mitosis and meiosis similar?
3. How are mitosis and meiosis different?