

Unit VII Heredity Teaching Module B-4.5

Instructional Focus

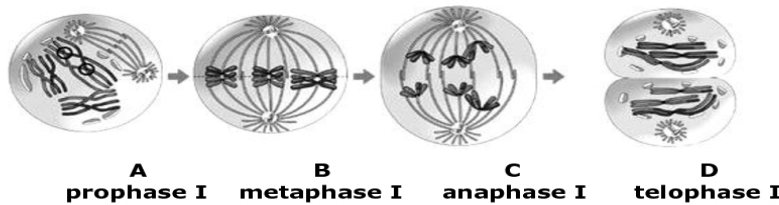
Summarize the characteristics of the phases of Meiosis I and II.

Content Overview for Module B-4.5

Meiosis occurs in two steps:

- *Meiosis I*, in which the chromosome pairs replicate, results in two haploid *daughter cells* with duplicated chromosomes different from the sets in the original diploid cell.
- *Meiosis II*, in which the haploid daughter cells from Meiosis I divide, results in four haploid daughter cells called *gametes*, or sex cells (eggs and sperm), with undoubled chromosomes.

Meiosis I



Like in Mitosis (see B-2.6), Meiosis I begins with *interphase* in which cells: (1) increase in size, (2) produce RNA, (3) synthesize proteins, and (4) replicate DNA'

- *Prophase I* (see figure "A" above)
 - The nuclear membrane breaks down; centrioles separate from each other and take up positions on the opposite sides of the nucleus and begin to produce spindle fibers.
 - Chromosomes pair up and become visible as a cluster of four chromatids called a *tetrad*.
 - ◆ A *homologous* chromosome pair consists of two chromosomes containing the same type of genes.
 - * the paternal chromosome in the pair is contributed by the organism's male parent
 - * the maternal chromosome in the pair is contributed by the organism's female parent.