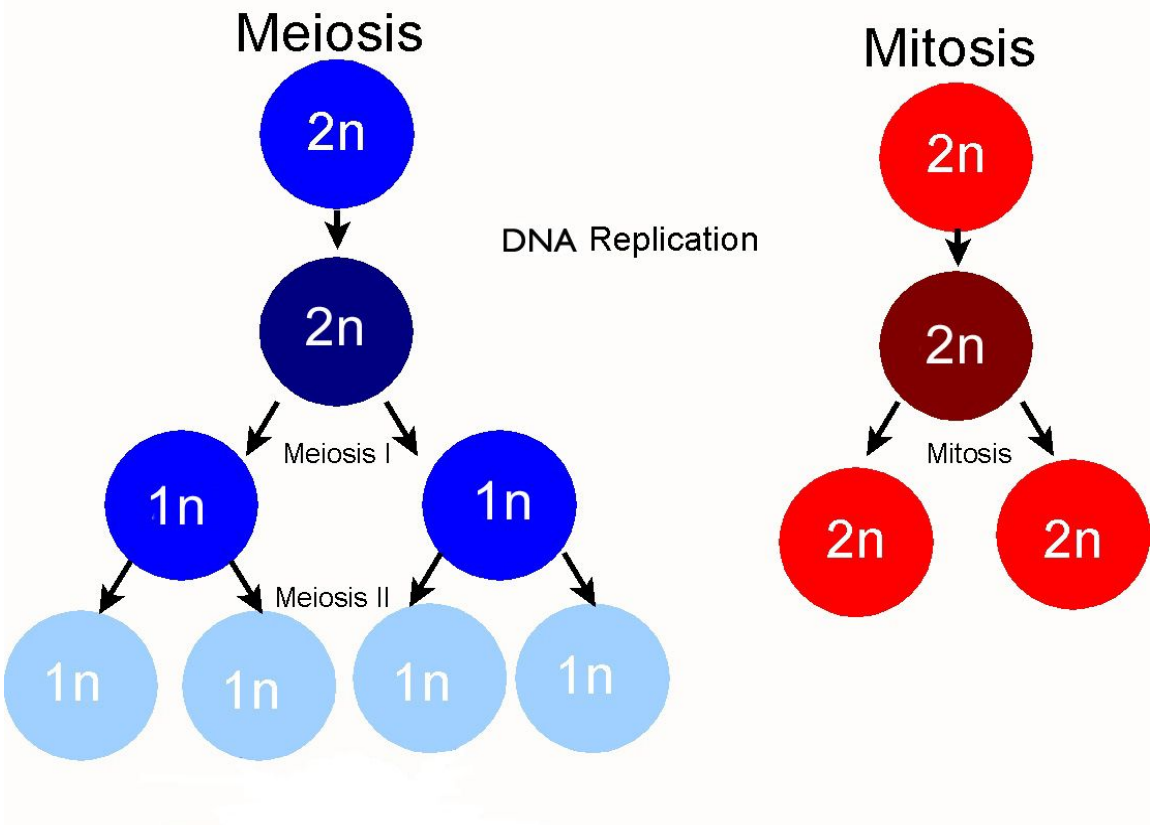
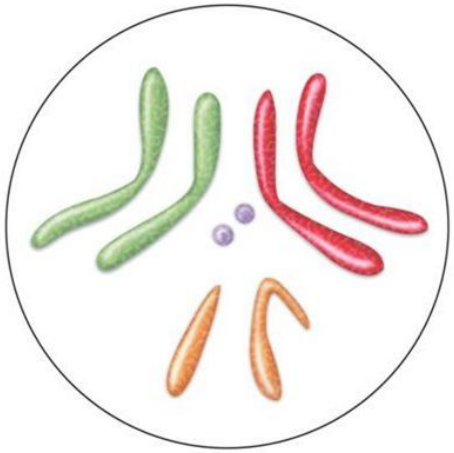
11.4 Meiosis

Sex cells do **not** undergo mitosis.

Meiosis: a type of cell division that results in 4 daughter cells with half the number of chromosomes.

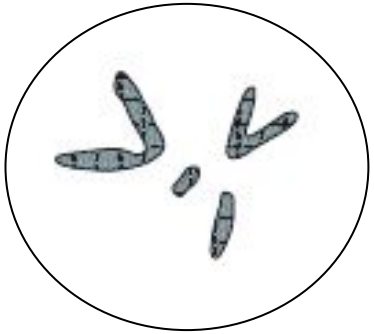




Homologous chromosomes: paired, have the same structure and position.

2N= 8

Diploid: A cell that contains a homologous set of chromosomes



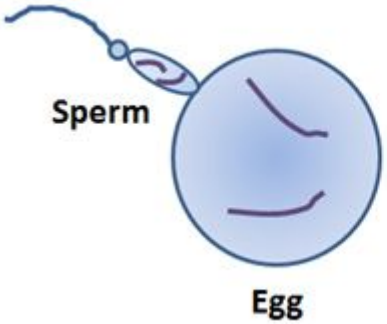
N= 4

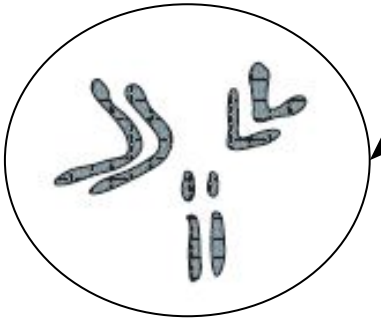
Haploid: A gamete (sex cell) which contains only one set of chromosomes

Gametes: mature male or female haploid cells

Sperm: male gamete

Egg: female gamete

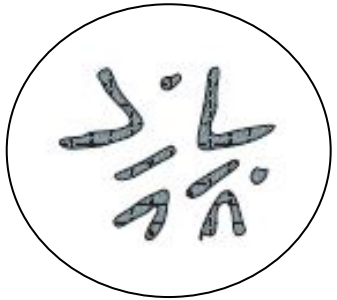




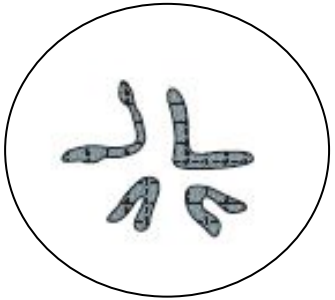
Diploid Cell

A

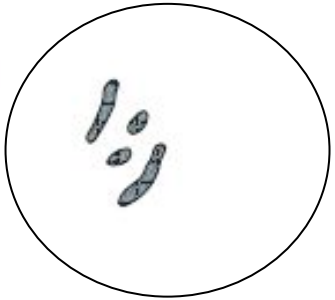
B



C

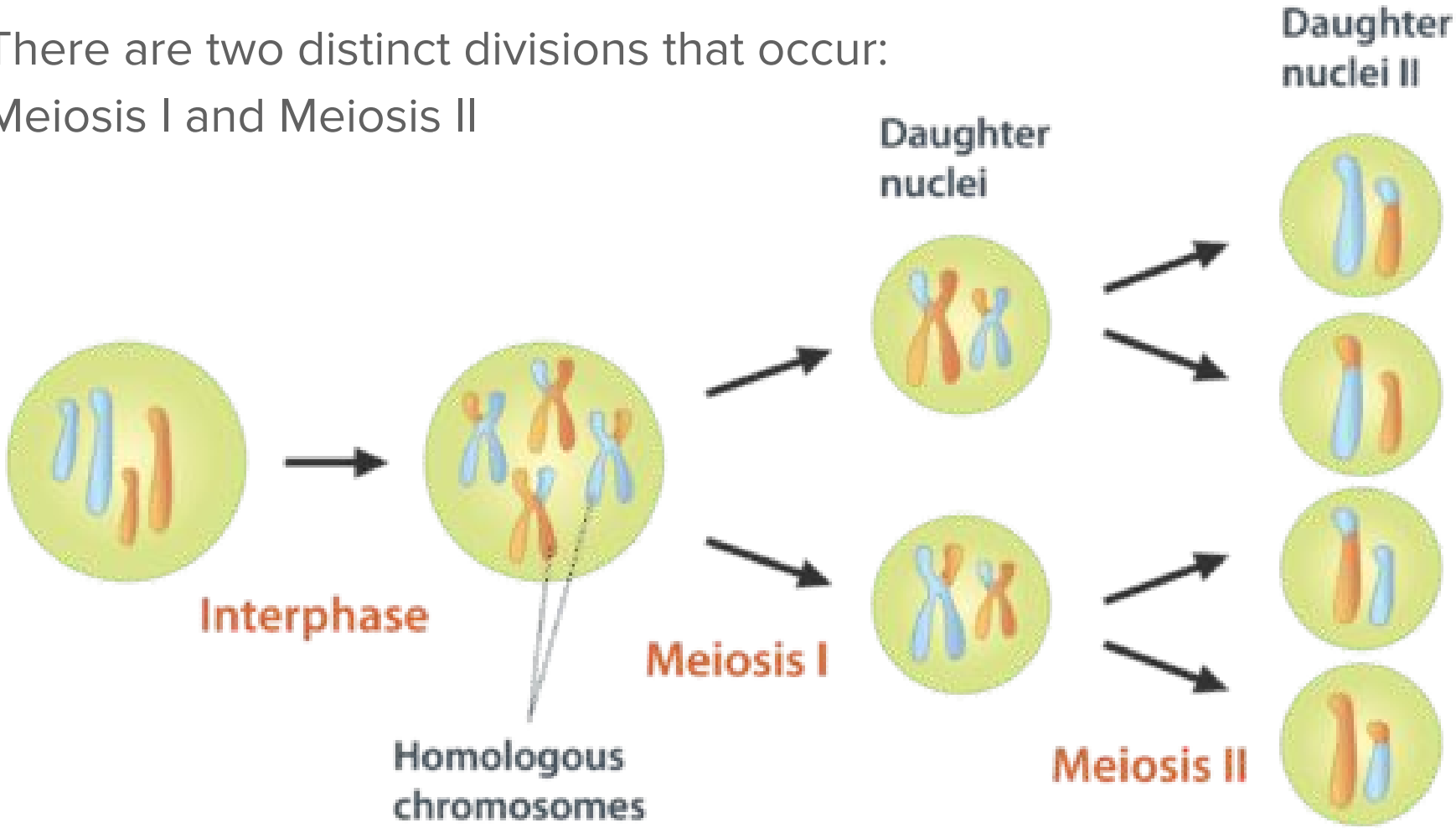


D



Which cell is haploid?

There are two distinct divisions that occur:
Meiosis I and Meiosis II



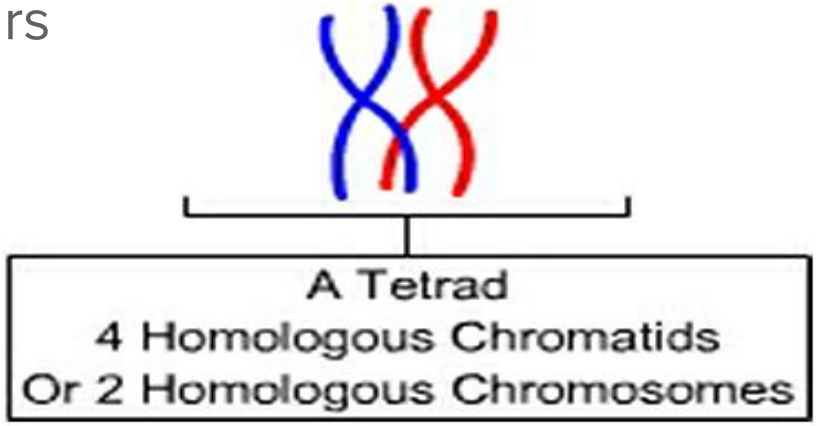
Meiosis I: the first cell division occurs

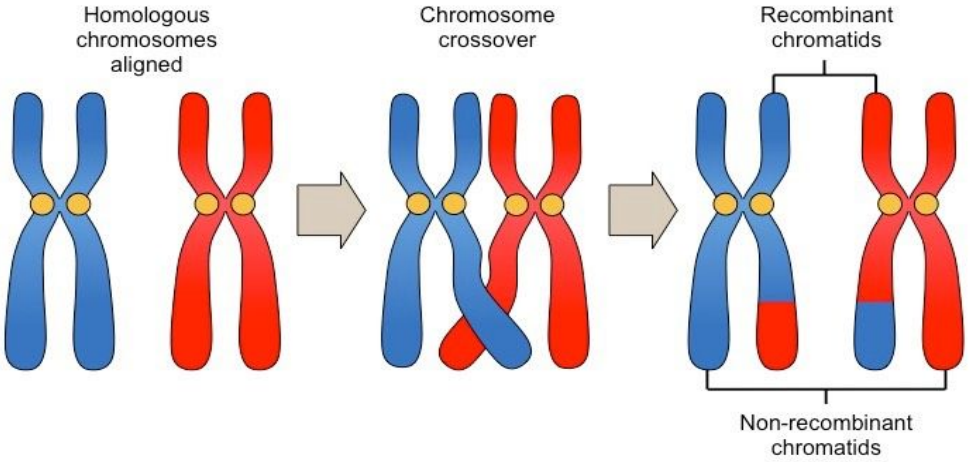
Prophase I

Tetrads form and crossing over occurs.

- **Tetrad**: attached pair of homologous chromosomes

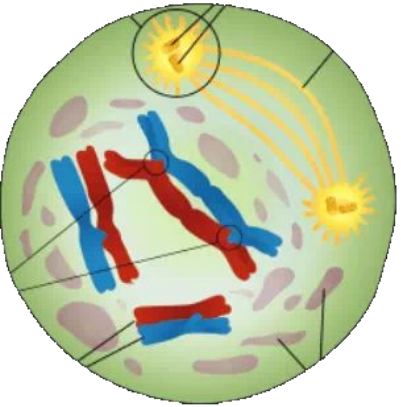
- **Crossing-over:** homologous chromosomes exchange portions of their chromatids, *increases genetic variation*!



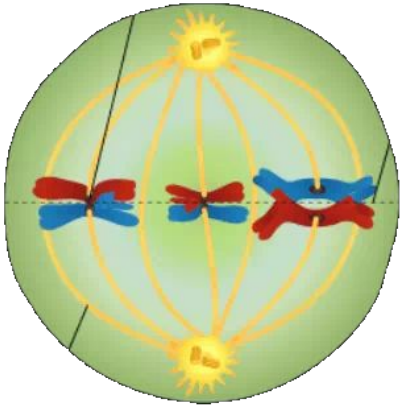


The newly recombined chromatids will continue through Meiosis I

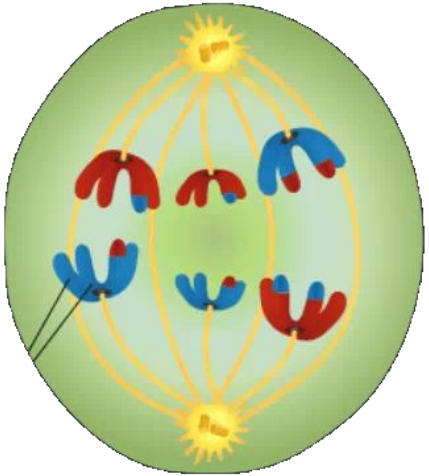
Prophase I



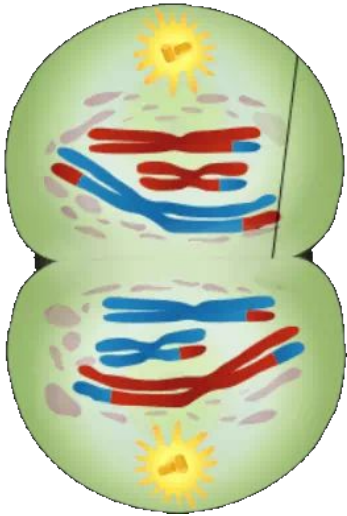
Metaphase I



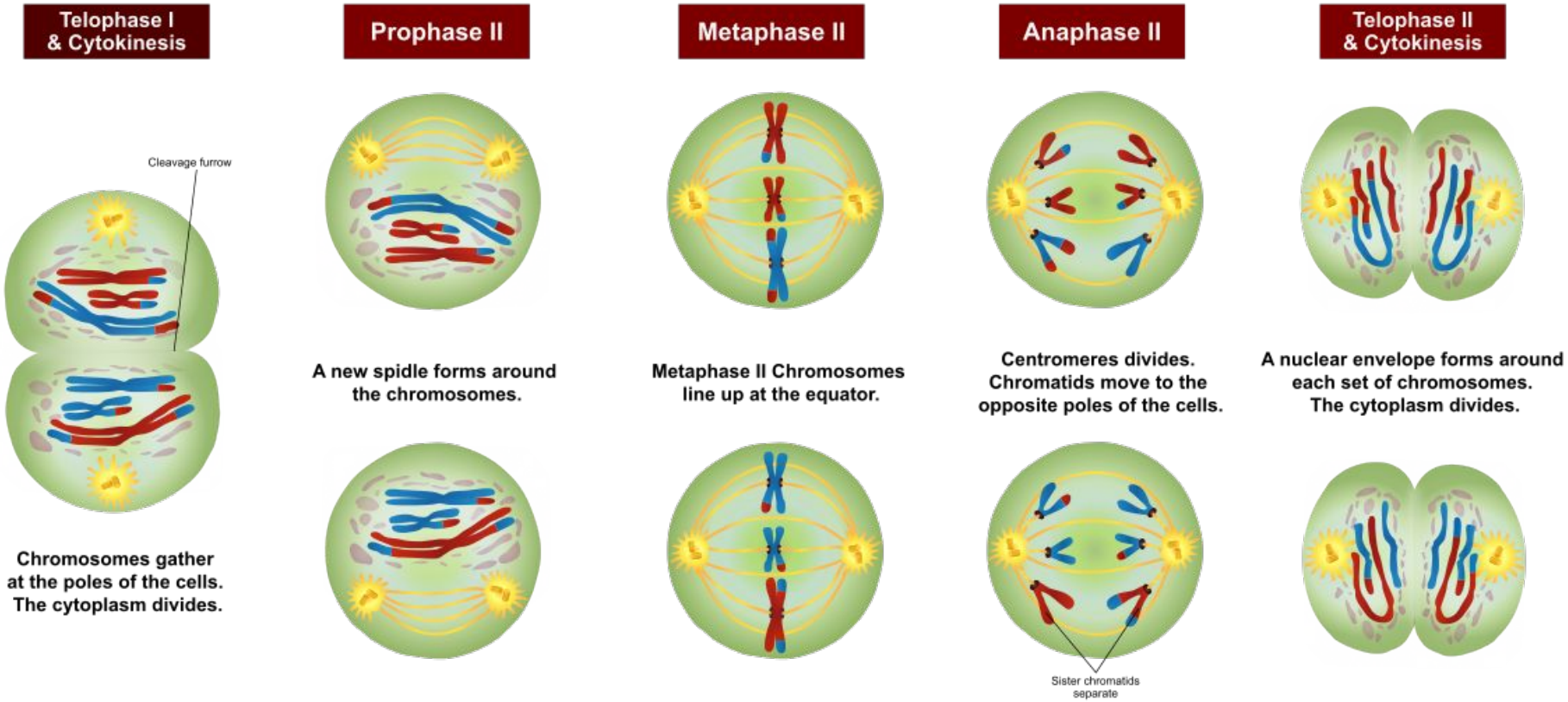
Anaphase I



Telophase I & cytokinesis

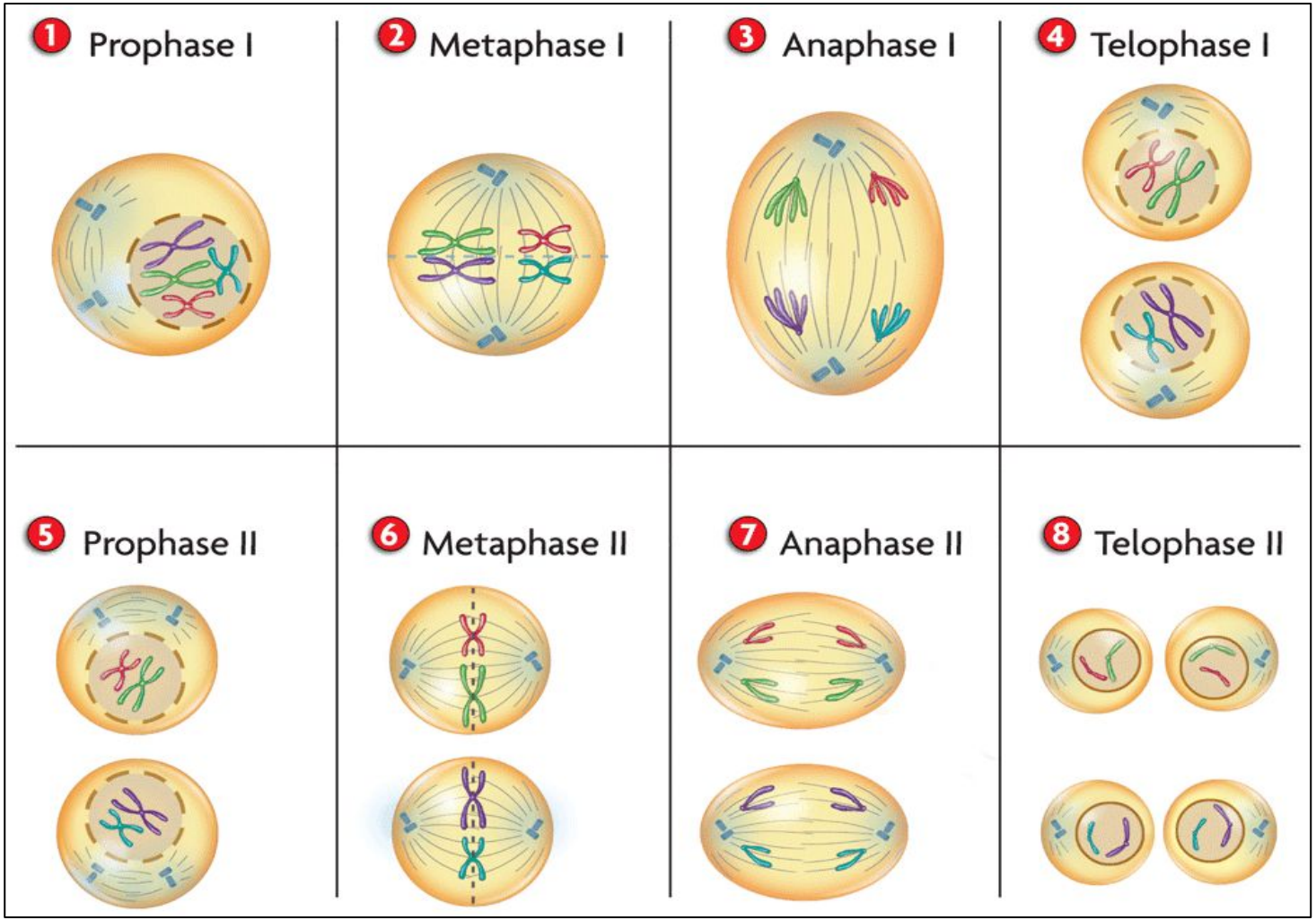


Meiosis II: Second cell division occurs (without DNA replication), ends with 4 haploid daughter cells.



Meiosis I

Meiosis II



Let's Review!