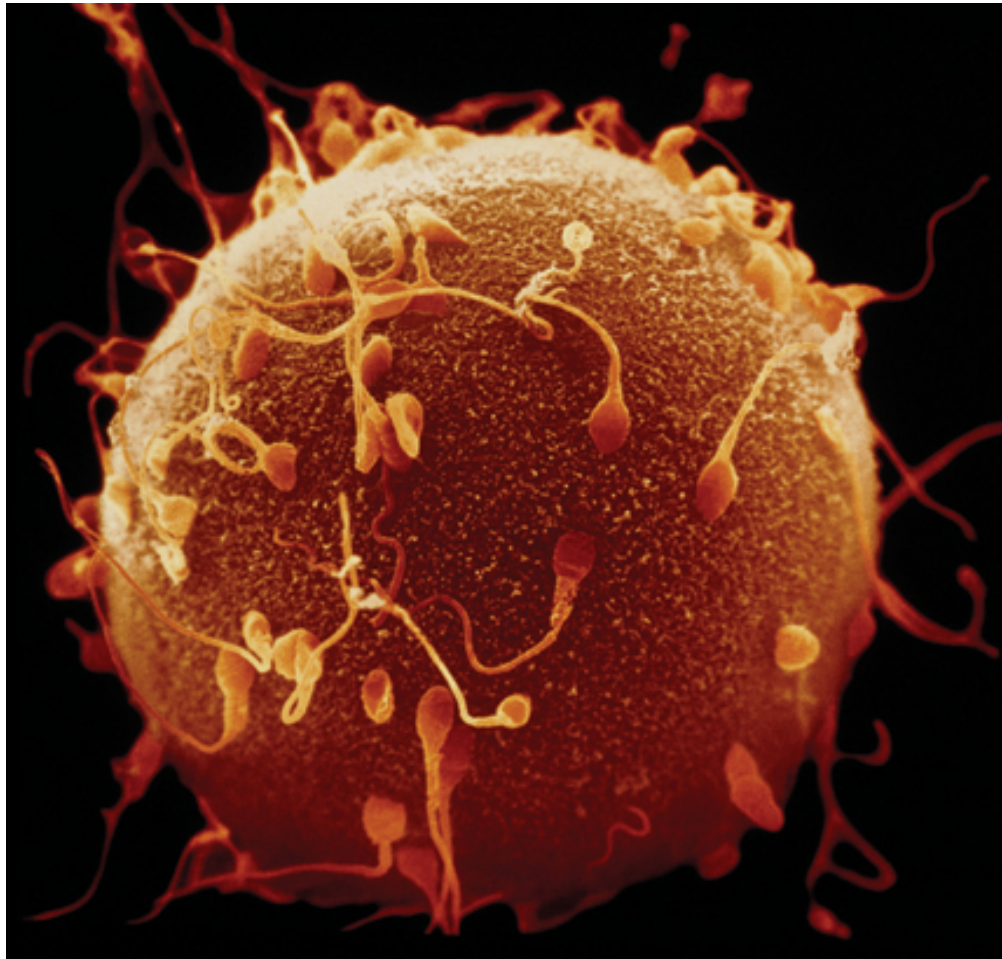


6.2 Process of Meiosis

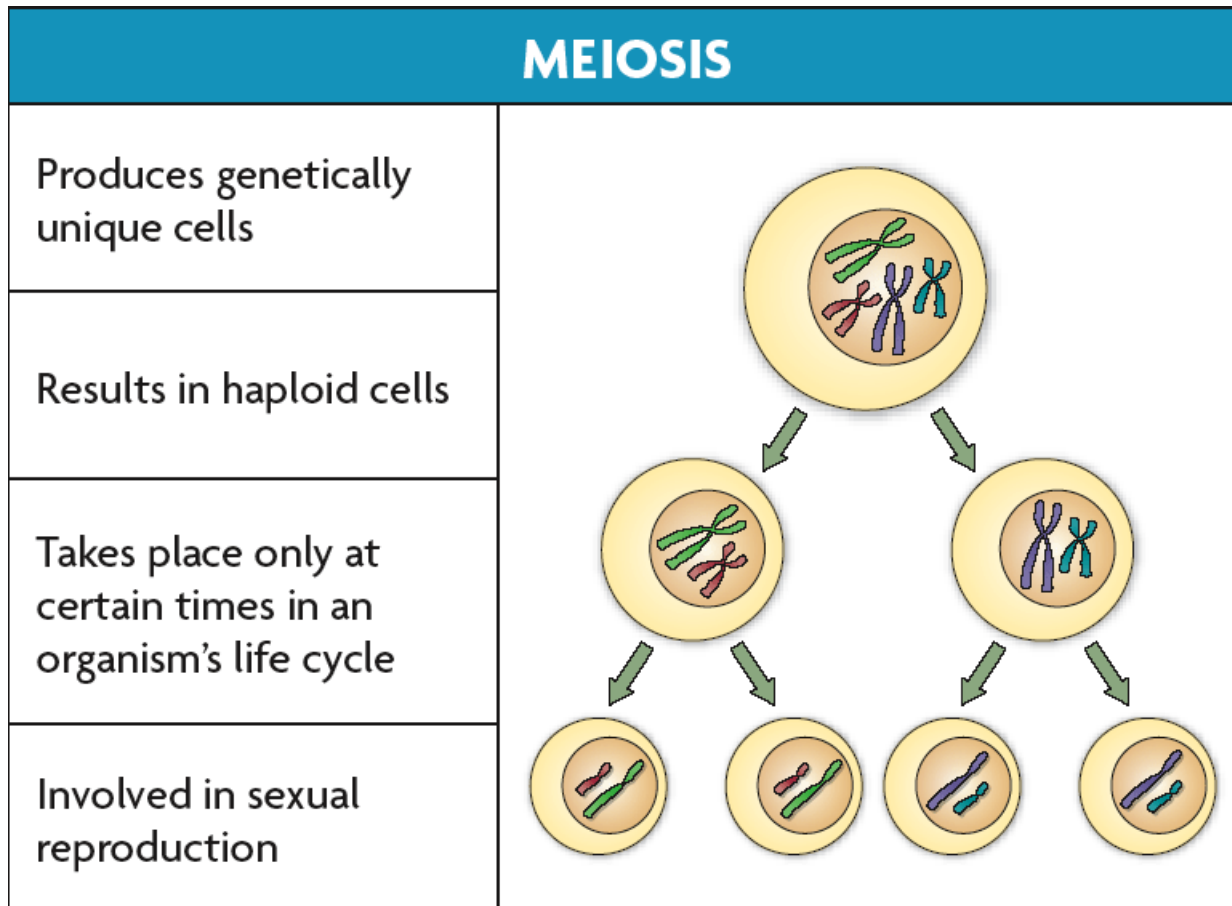
KEY CONCEPT

During meiosis, diploid cells undergo two cell divisions that result in haploid cells.



6.2 Process of Meiosis

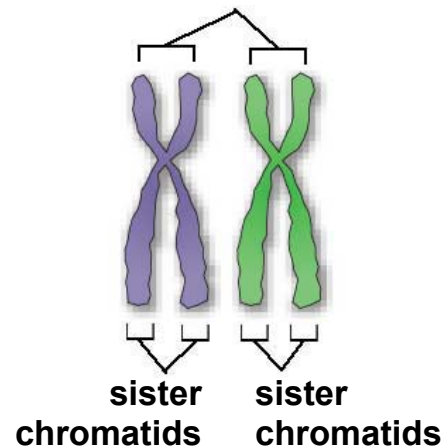
- ▶ **Cells go through two rounds of division in meiosis.**
- Meiosis reduces chromosome number and creates genetic diversity.



6.2 Process of Meiosis

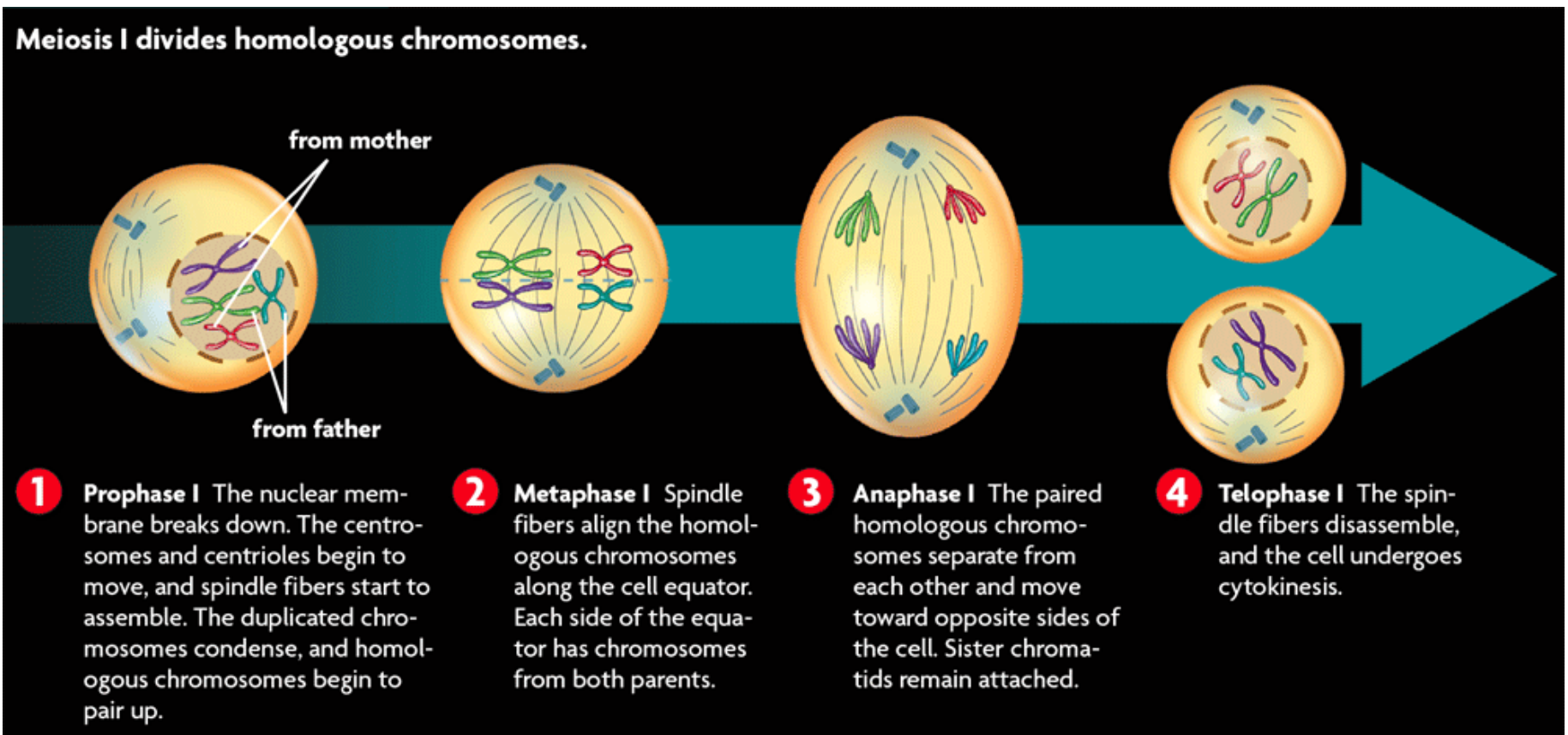
- Meiosis I and meiosis II each have four phases, similar to those in mitosis.
 - Pairs of homologous chromosomes separate in meiosis I.
 - Homologous chromosomes are similar but not identical.
 - Sister chromatids divide in meiosis II.
 - Sister chromatids are copies of the same chromosome.

homologous chromosomes



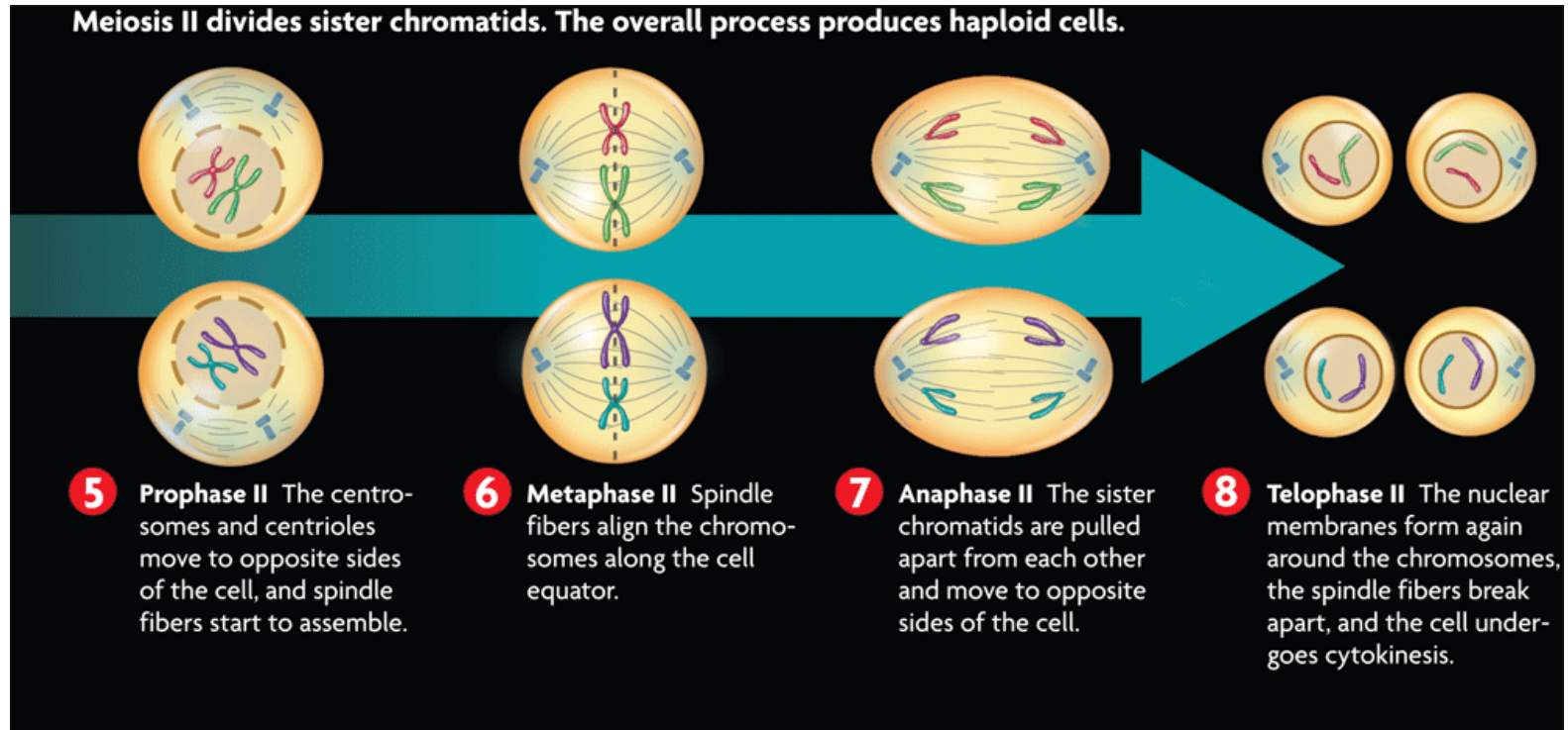
6.2 Process of Meiosis

- Meiosis I occurs after DNA has been replicated.
- Meiosis I divides homologous chromosomes in four phases.



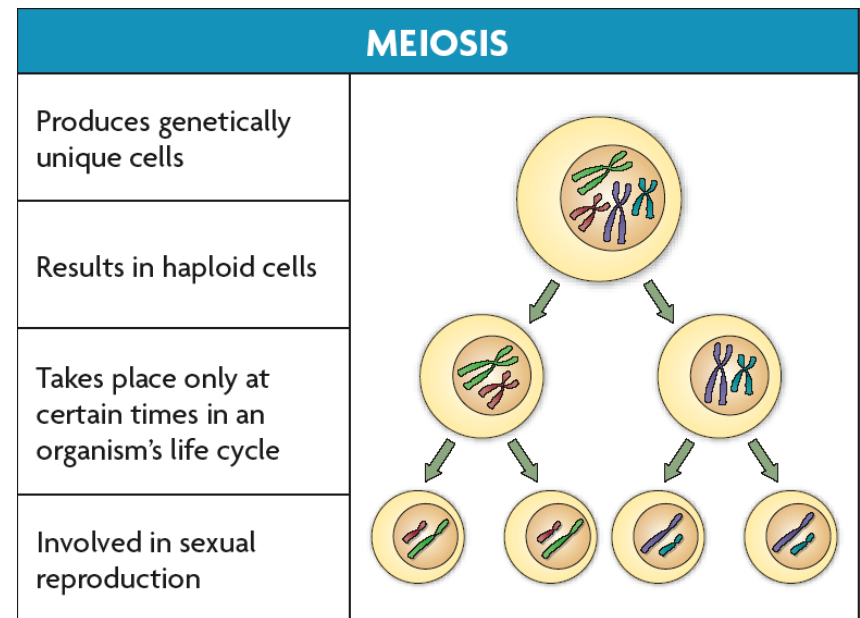
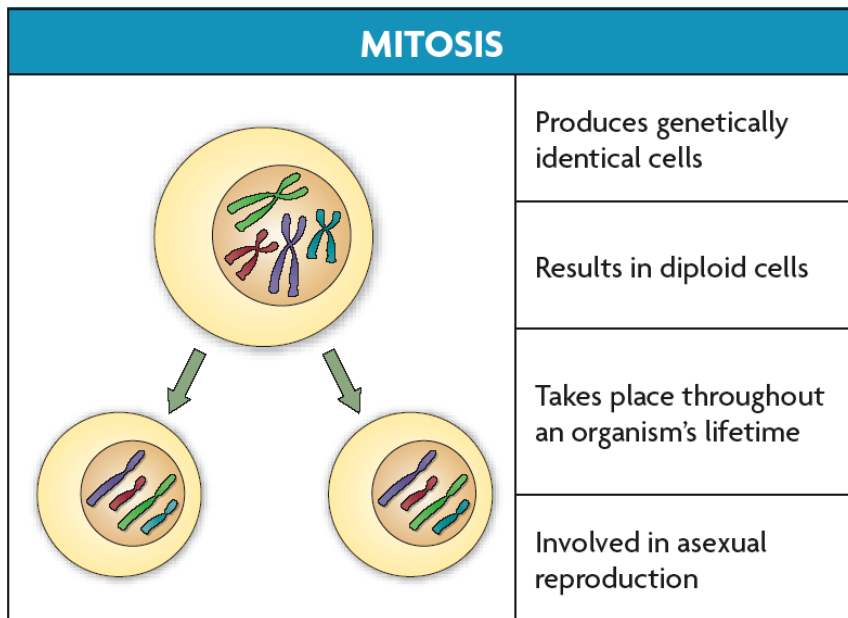
6.2 Process of Meiosis

- Meiosis II divides sister chromatids in four phases.
- DNA is not replicated between meiosis I and meiosis II.



6.2 Process of Meiosis

- Meiosis differs from mitosis in significant ways.
 - Meiosis has two cell divisions while mitosis has one.
 - In mitosis, homologous chromosomes never pair up.
 - Meiosis results in haploid cells; mitosis results in diploid cells.



6.2 Process of Meiosis

▶ Haploid cells develop into mature gametes.

- Gametogenesis is the production of gametes.
- Gametogenesis differs between females and males.
 - Sperm become streamlined and motile.
 - Sperm primarily contribute DNA to an embryo.
 - Eggs contribute DNA, cytoplasm, and organelles to an embryo.
 - During meiosis, the egg gets most of the contents; the other cells form polar bodies.

