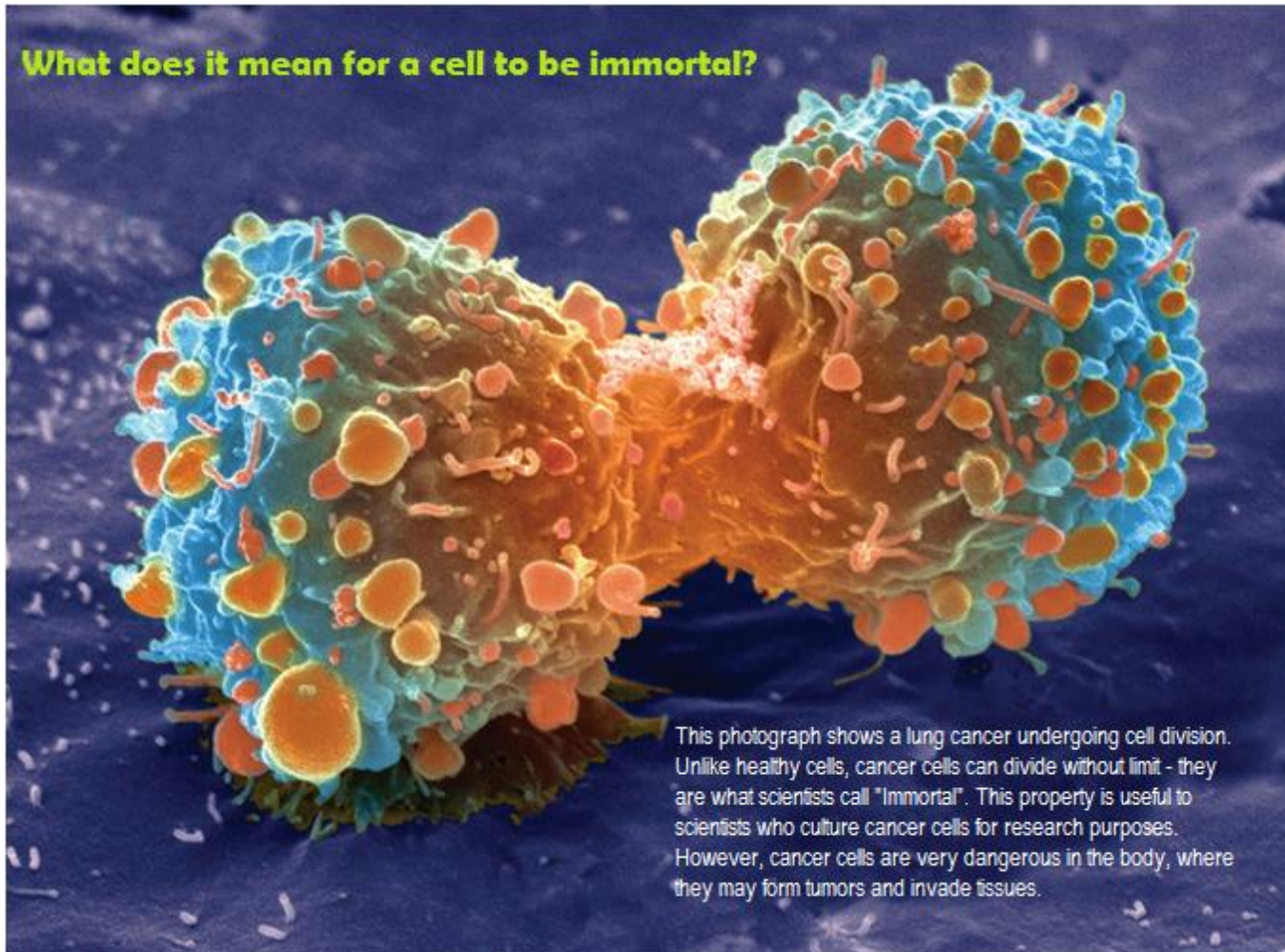


5.2 Mitosis and Cytokinesis

KEY CONCEPT

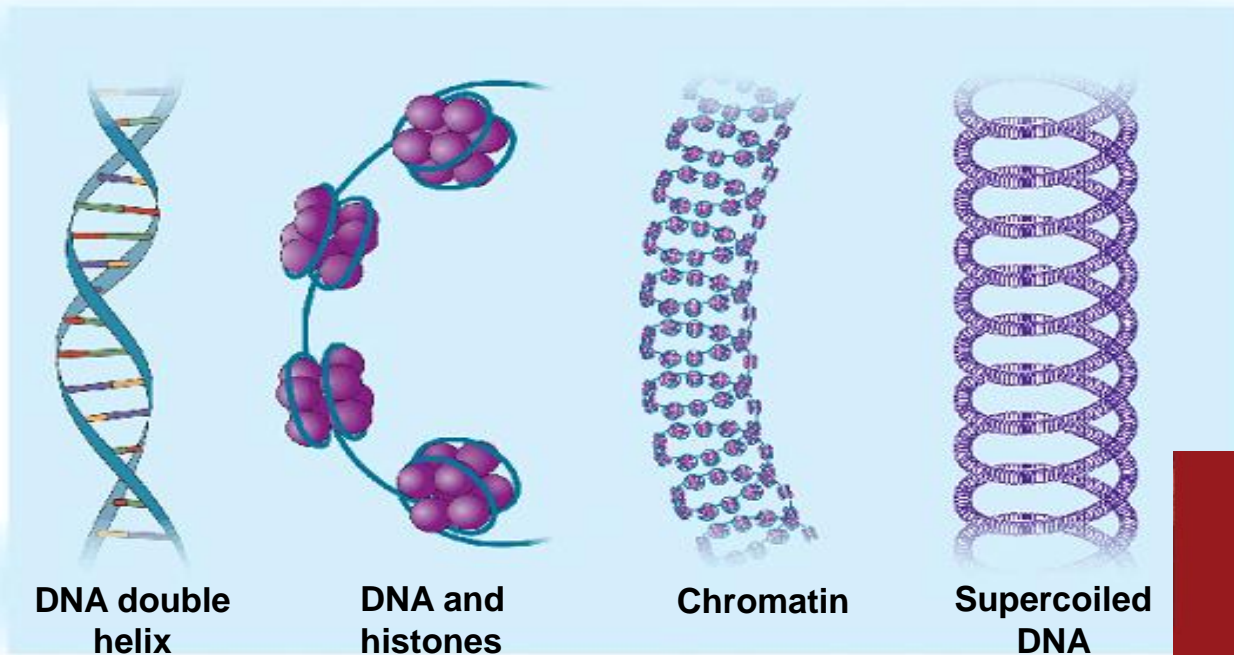
Cells divide during mitosis and cytokinesis.



5.2 Mitosis and Cytokinesis

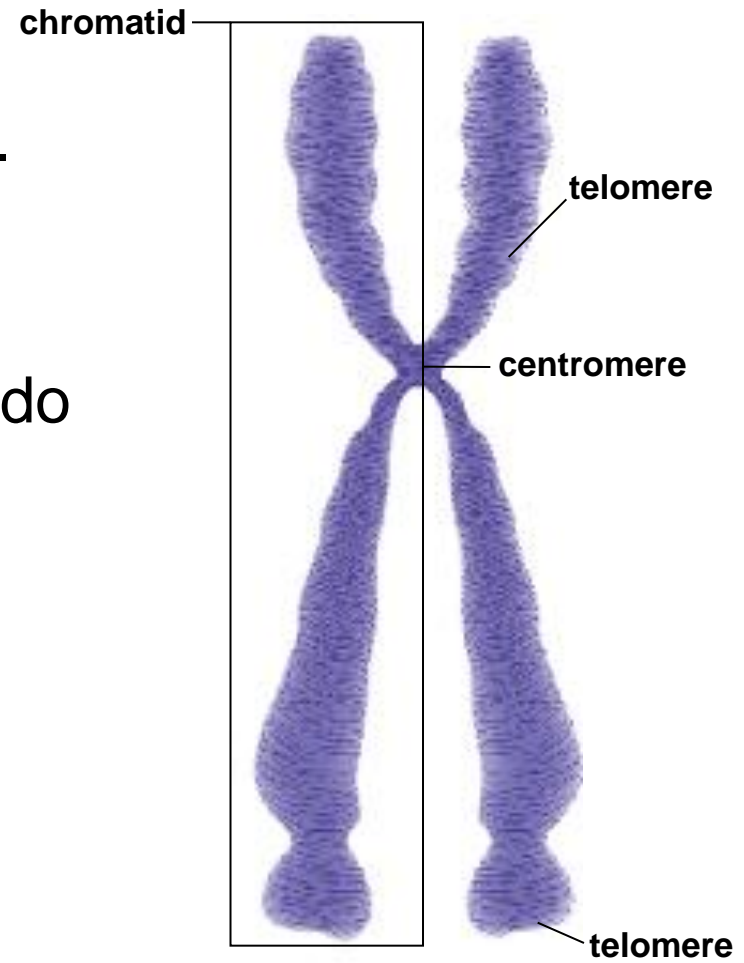
▶ Chromosomes condense at the start of mitosis.

- DNA wraps around proteins (histones) that condense it.



5.2 Mitosis and Cytokinesis

- DNA plus proteins is called **chromatin**.
- One half of a duplicated chromosome is a **chromatid**.
- Sister chromatids are held together at the **centromere**.
- **Telomeres** protect DNA and do not include genes.

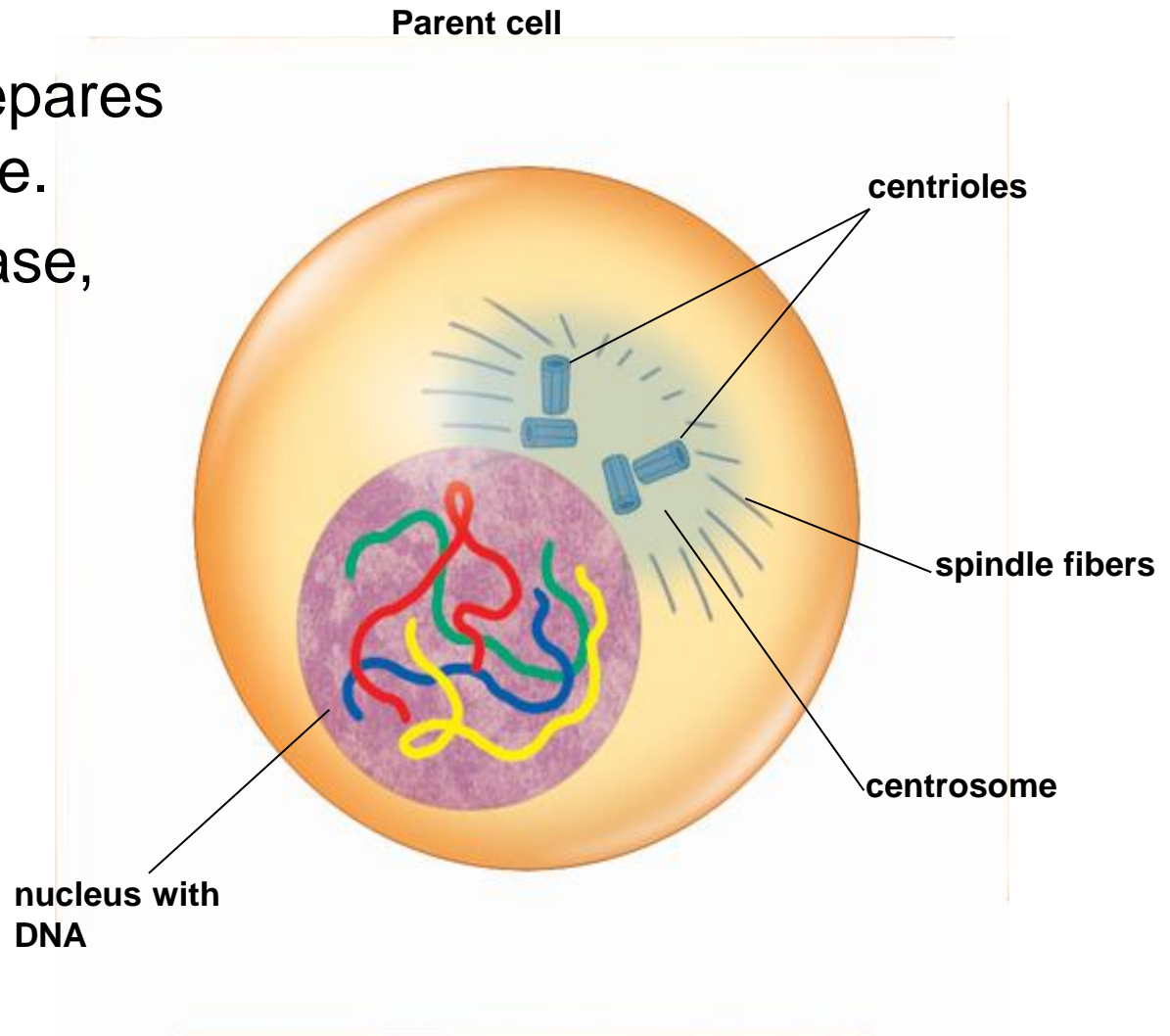


Condensed, duplicated chromosome

5.2 Mitosis and Cytokinesis

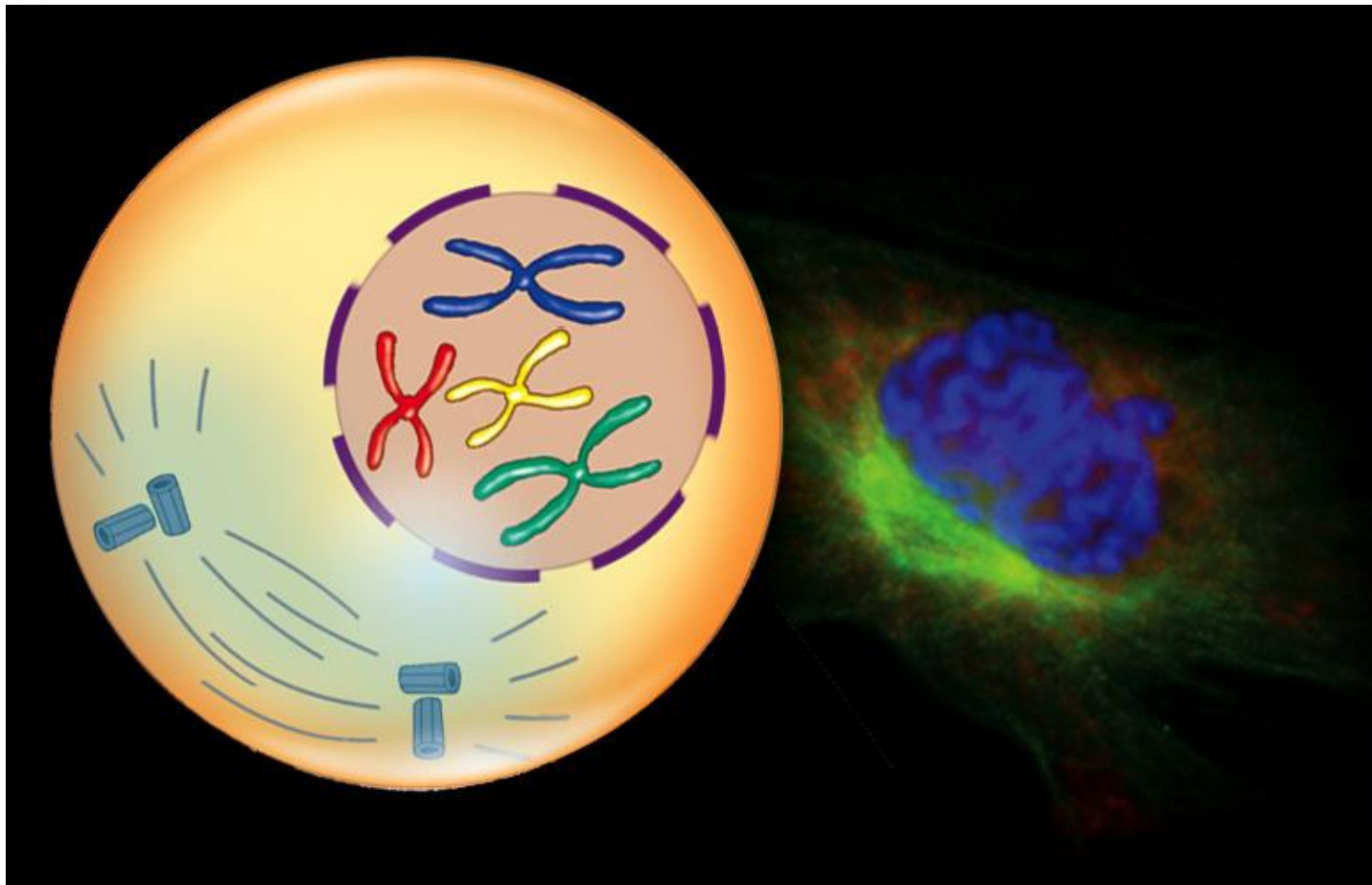
- ▶ **Mitosis and cytokinesis produce two genetically identical daughter cells.**

- **Interphase** prepares the cell to divide.
- During interphase, the DNA is duplicated.



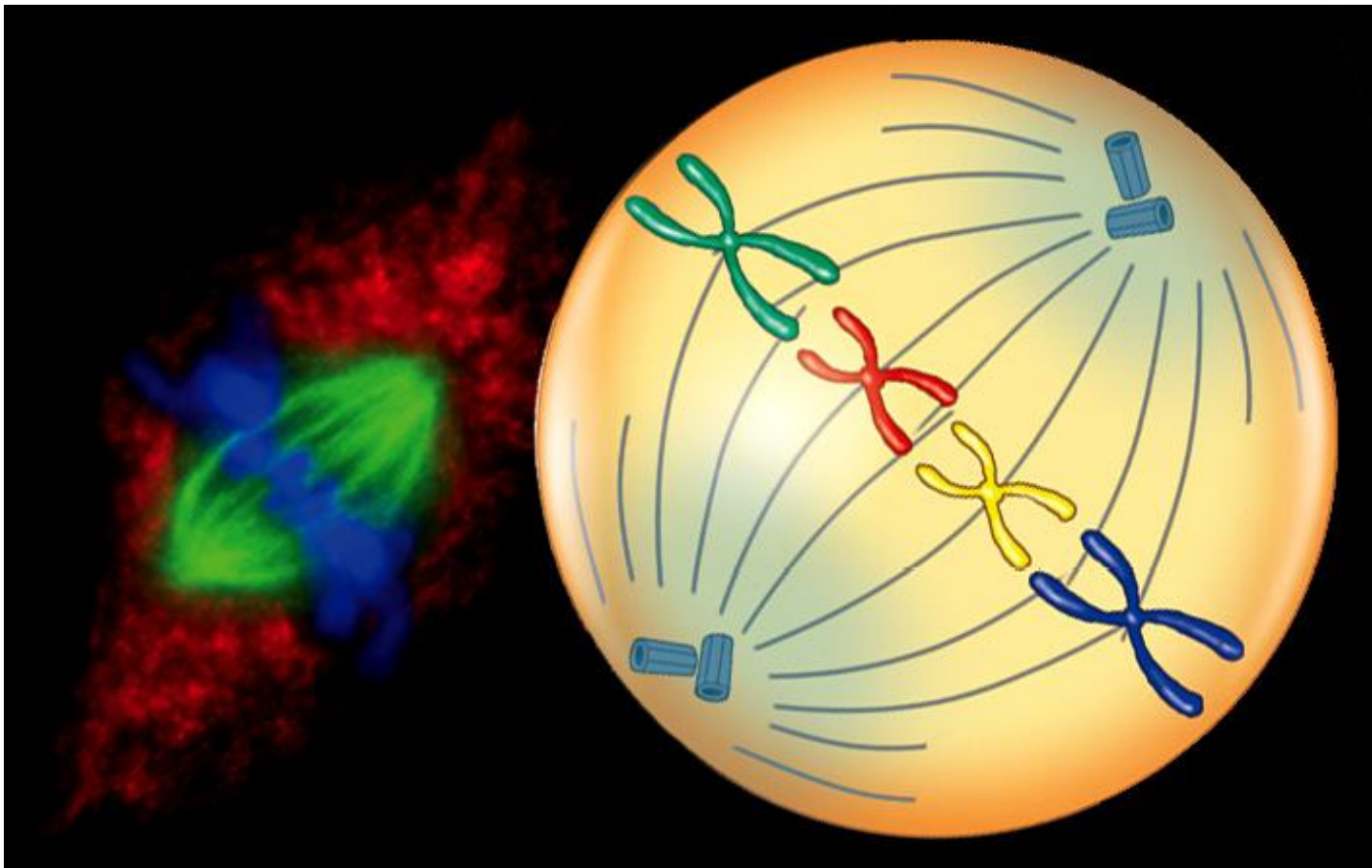
5.2 Mitosis and Cytokinesis

- Mitosis divides the cell's nucleus in **four** phases.
 - During **prophase**, chromosomes condense and spindle fibers form.



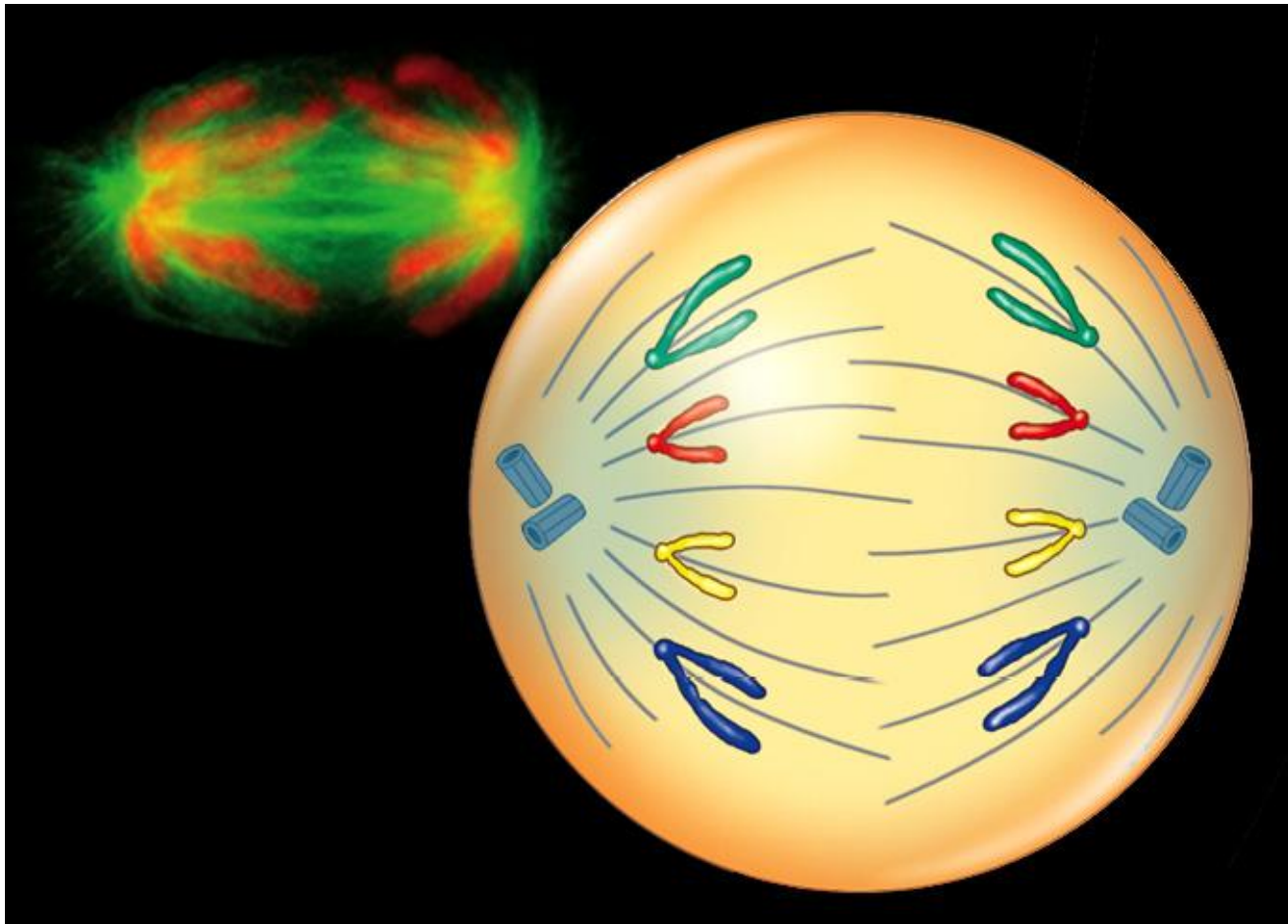
5.2 Mitosis and Cytokinesis

- Mitosis divides the cell's nucleus in **four** phases.
 - During **metaphase**, chromosomes line up in the middle of the cell.



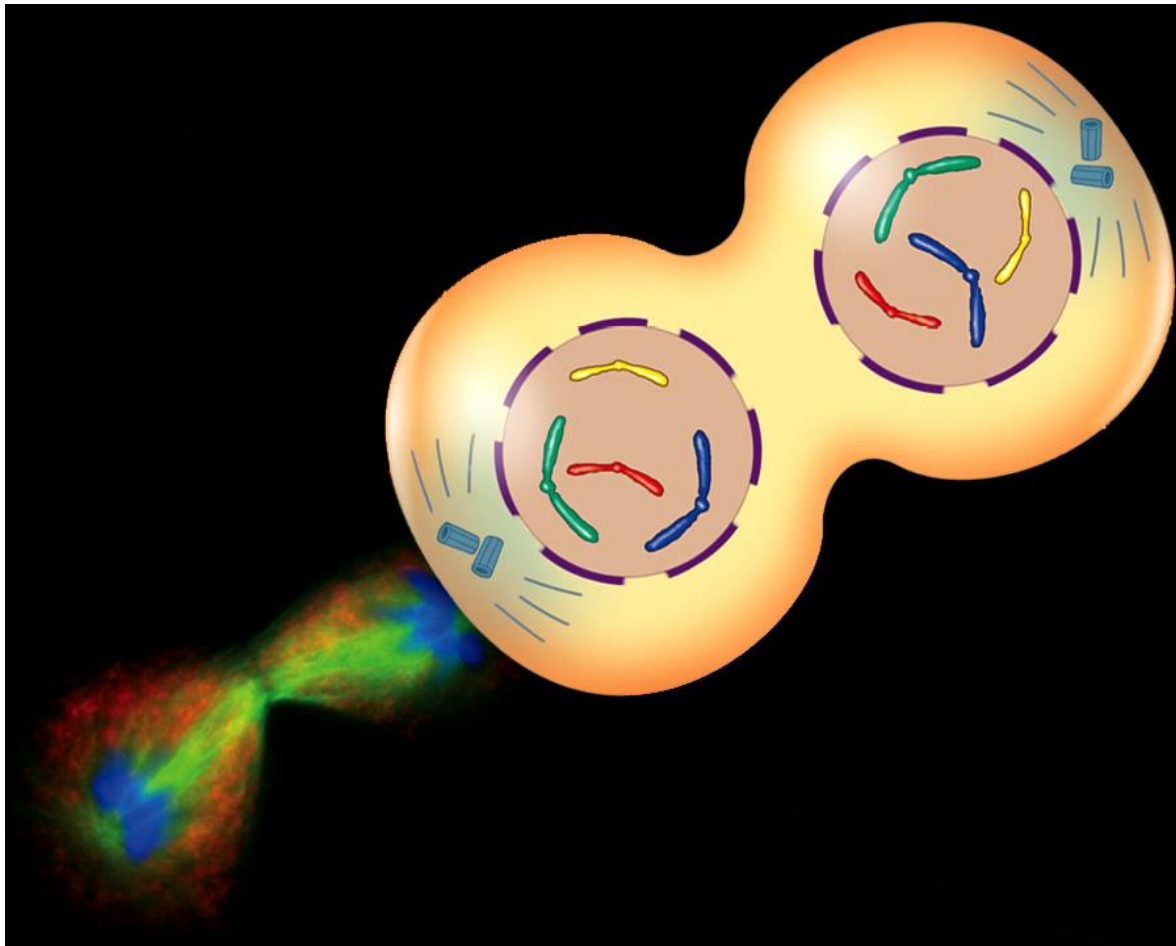
5.2 Mitosis and Cytokinesis

- Mitosis divides the cell's nucleus in **four** phases.
 - During **anaphase**, sister chromatids separate to opposite sides of the cell.



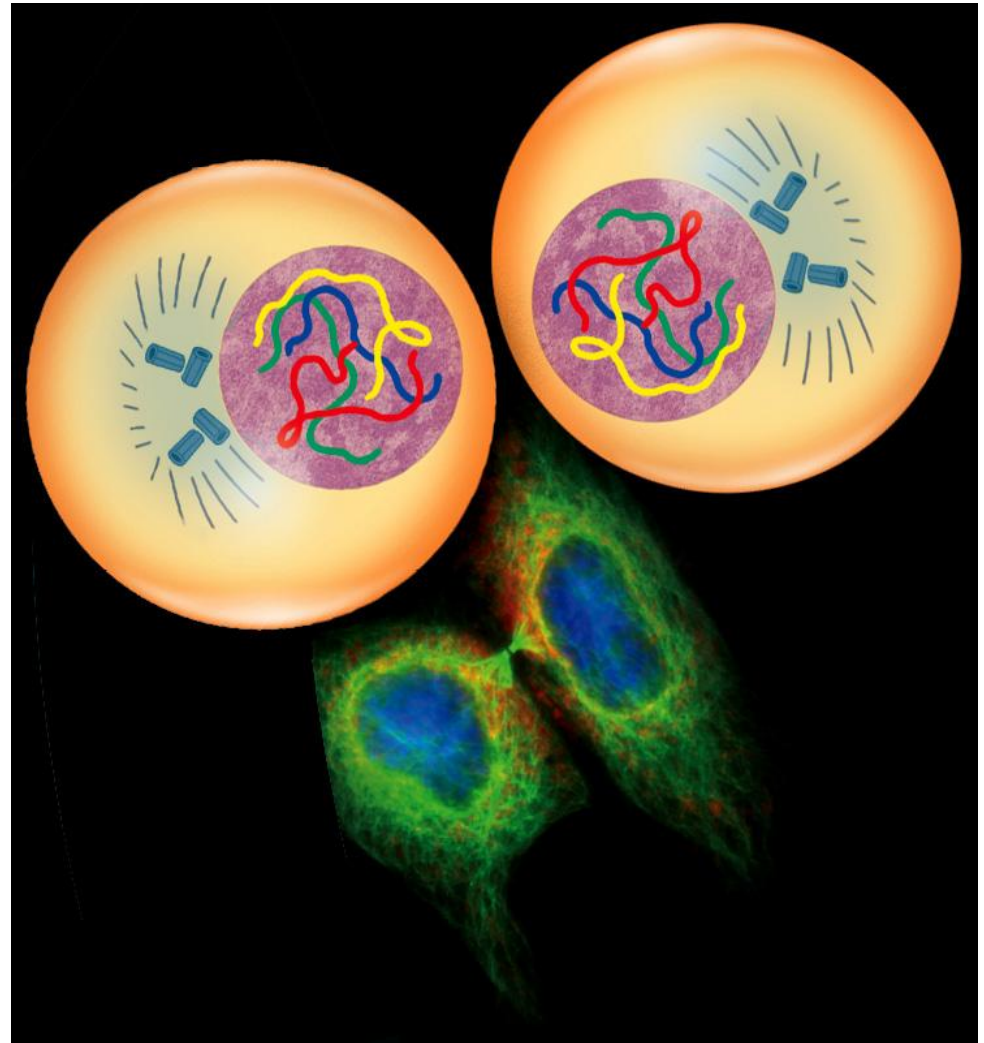
5.2 Mitosis and Cytokinesis

- Mitosis divides the cell's nucleus in **four** phases.
 - During **telophase**, the new nuclei form and chromosomes begin to uncoil.



5.2 Mitosis and Cytokinesis

- **Cytokinesis** differs in animal and plant cells.
 - In animal cells, the membrane pinches closed.
 - In plant cells, a cell plate forms.



5.2 Mitosis and Cytokinesis

▶ The Stages of Mitosis

