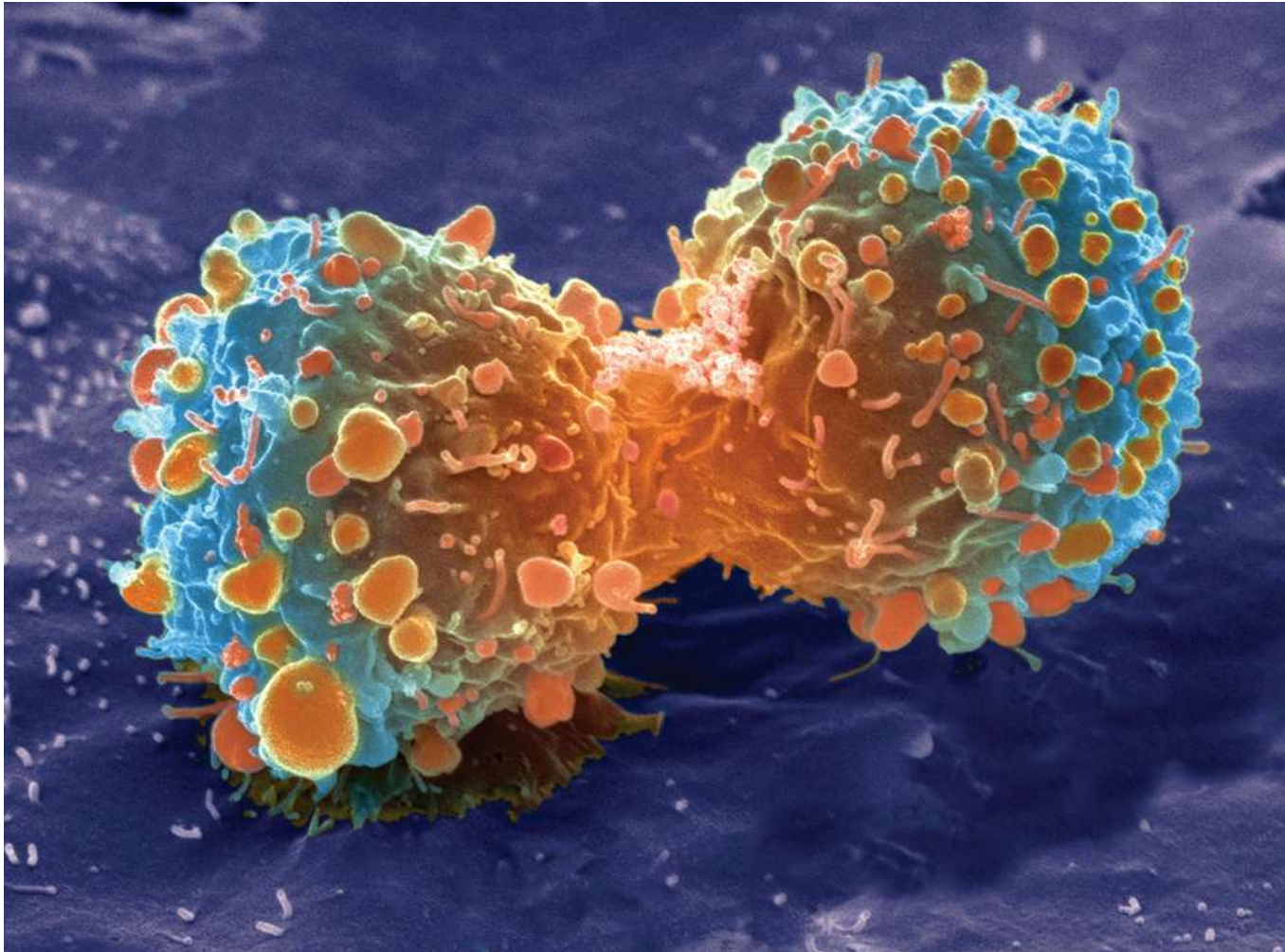


5.2 Mitosis and Cytokinesis

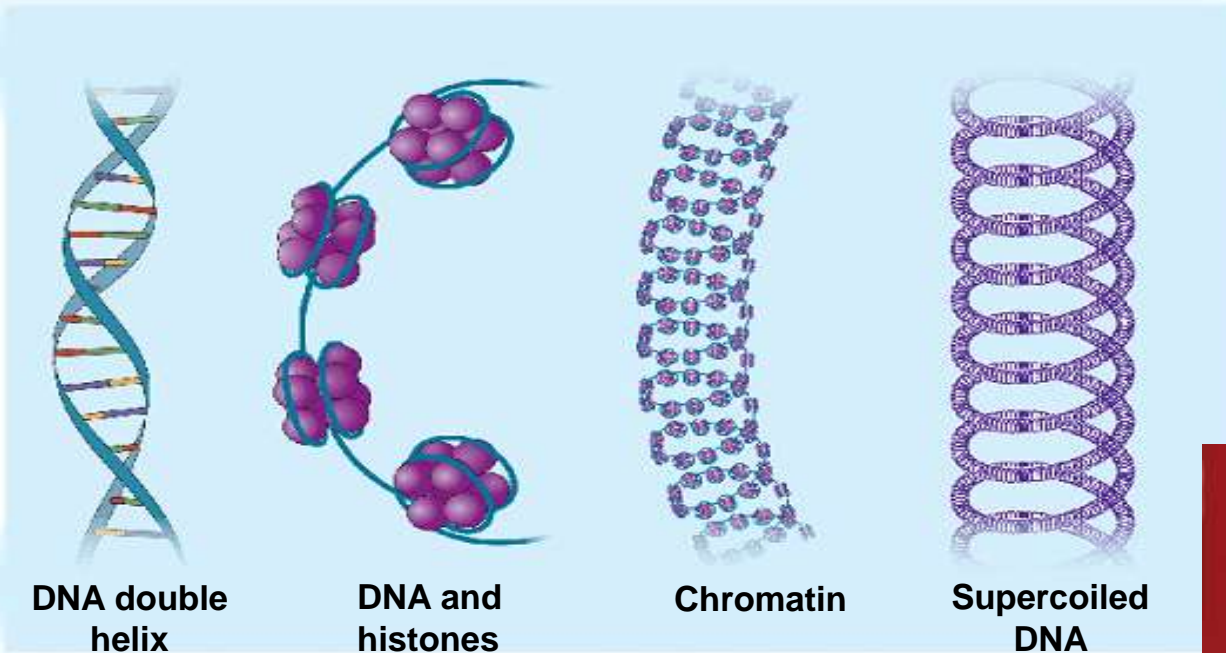
KEY CONCEPT

Cells divide during mitosis and cytokinesis.



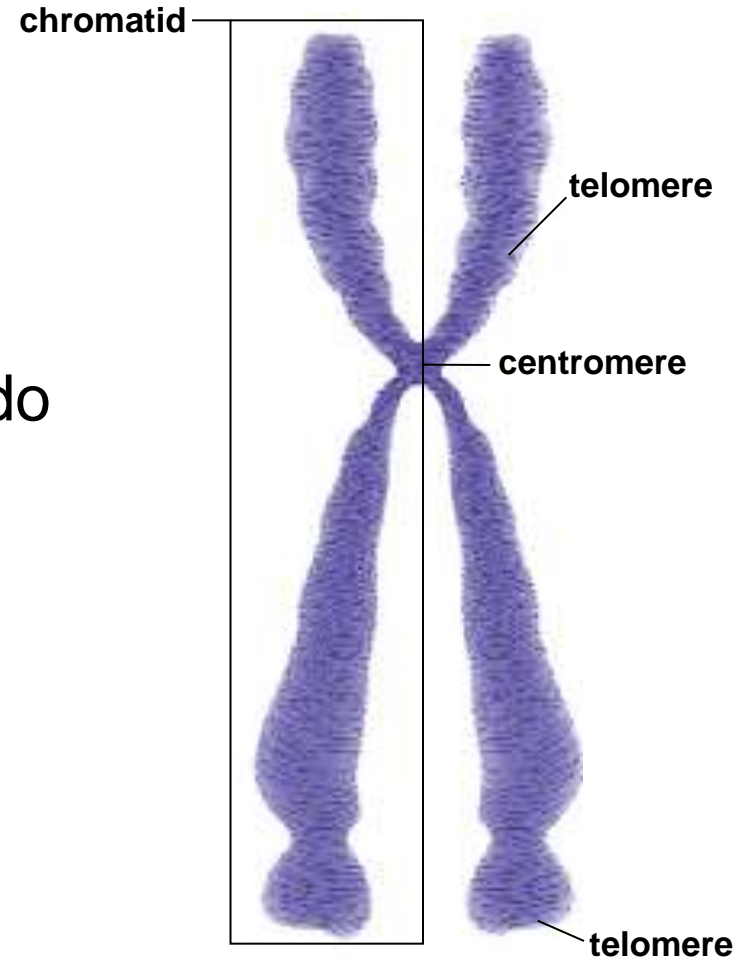
5.2 Mitosis and Cytokinesis

- ▶ **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.

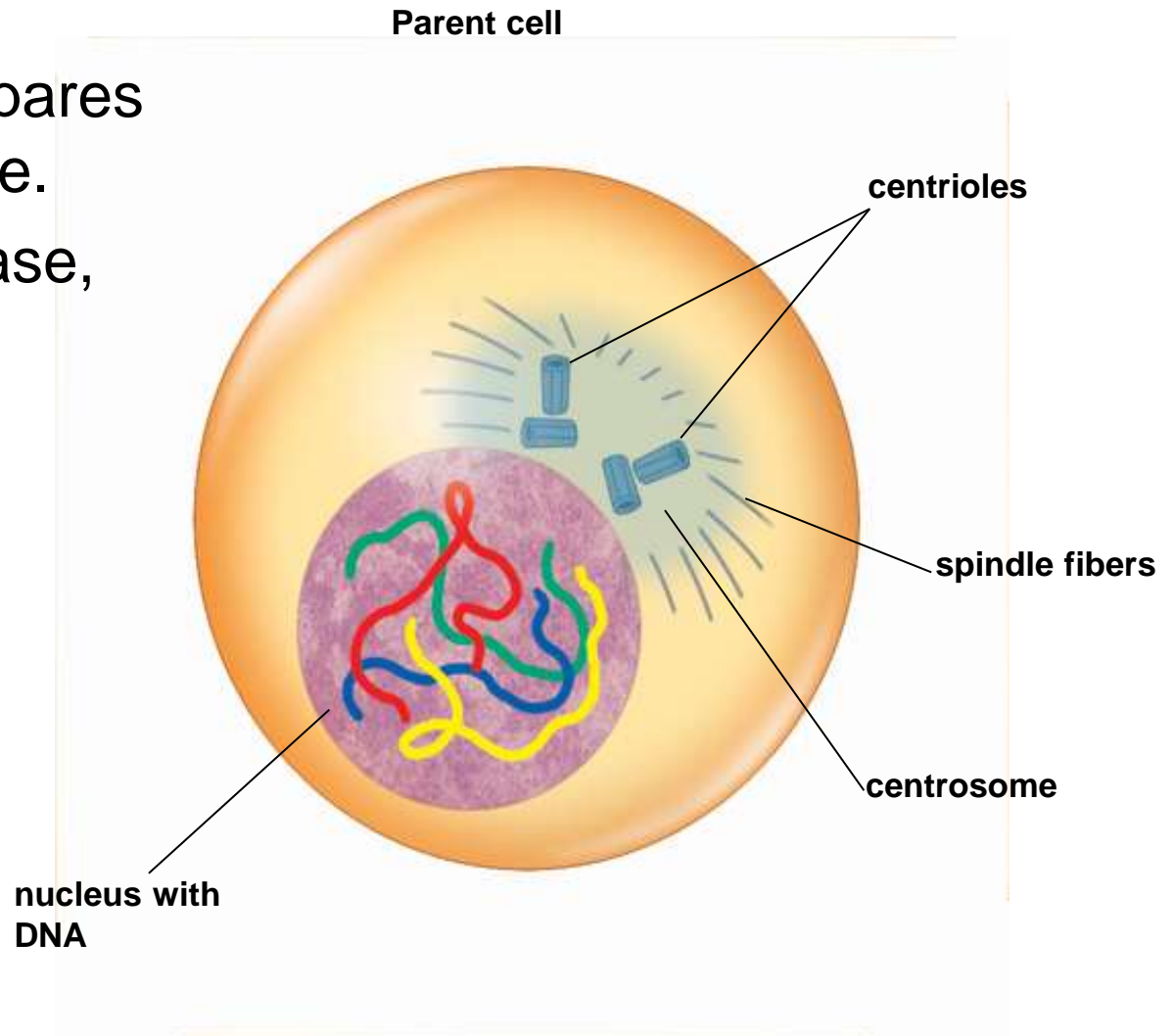


Condensed, duplicated chromosome

5.2 Mitosis and Cytokinesis

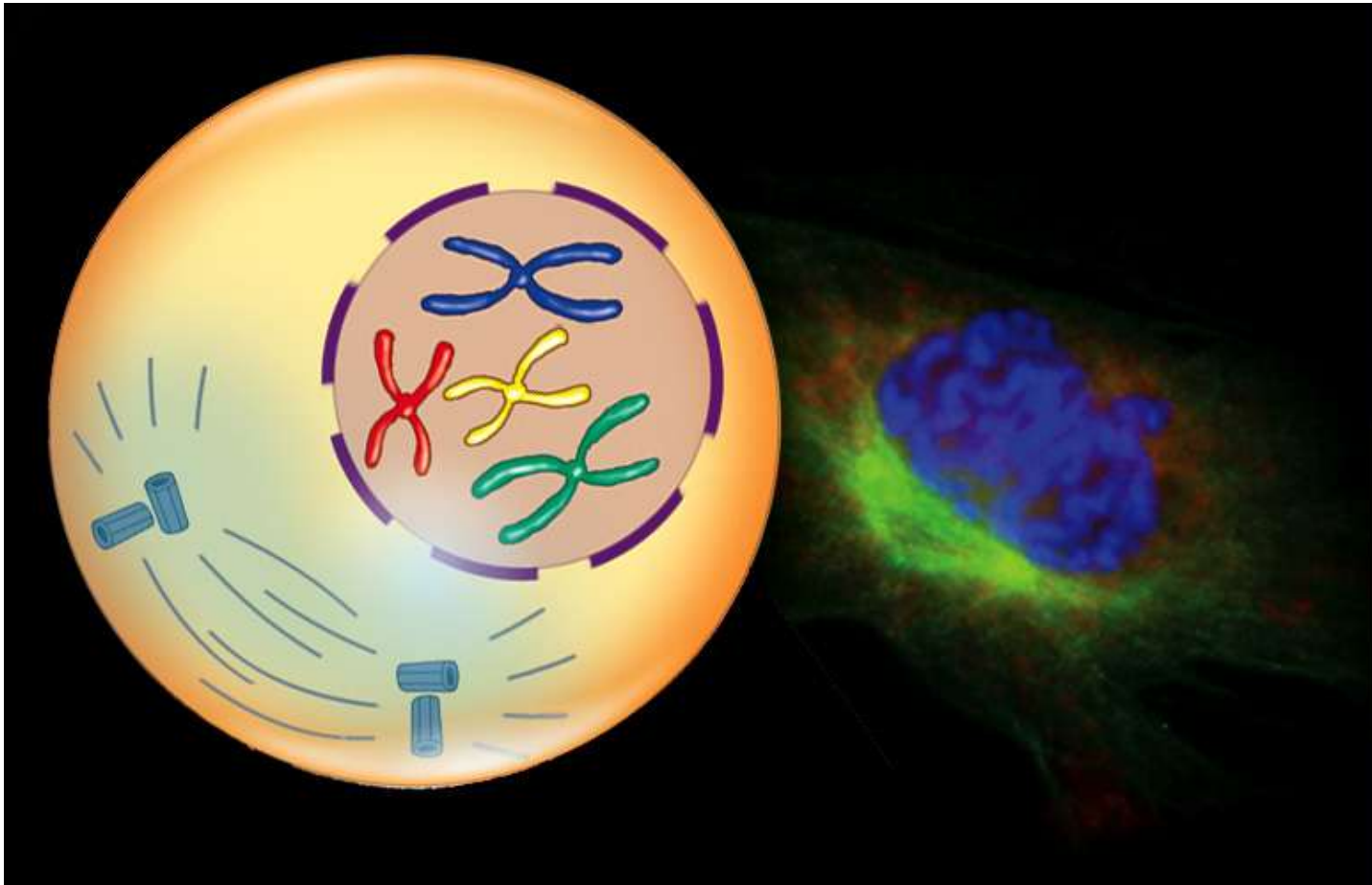
▶ Mitosis and cytokinesis produce two genetically identical daughter cells.

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



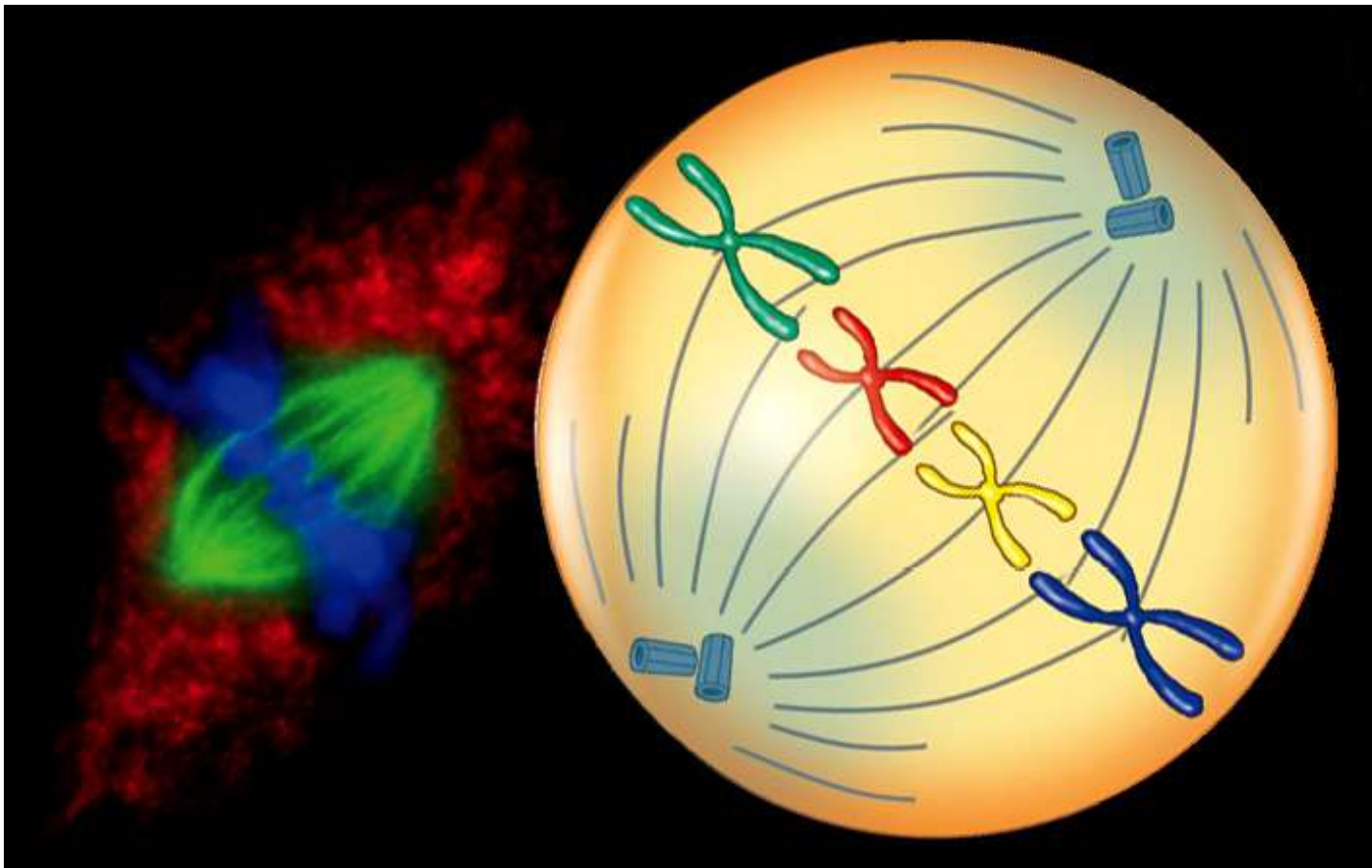
5.2 Mitosis and Cytokinesis

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



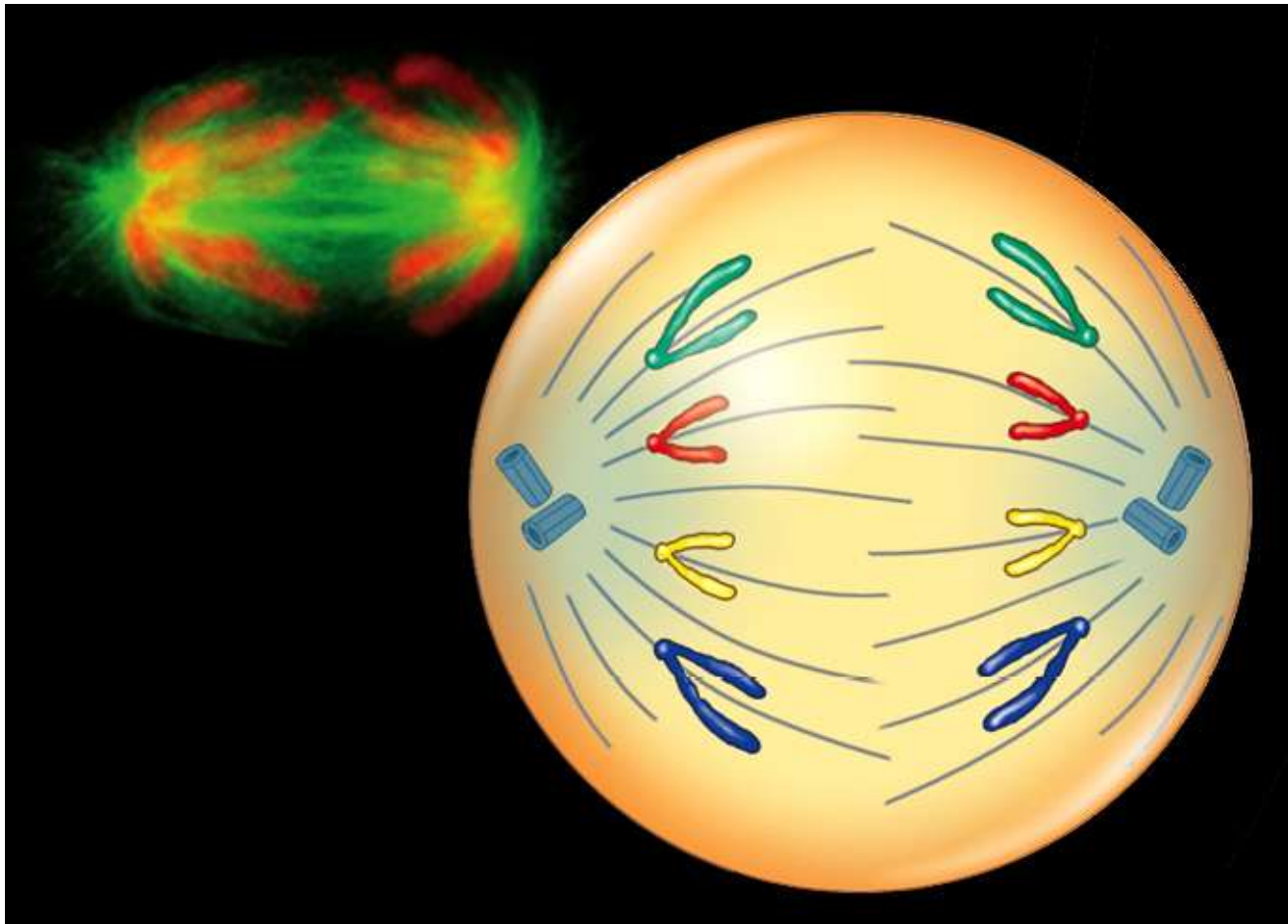
5.2 Mitosis and Cytokinesis

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



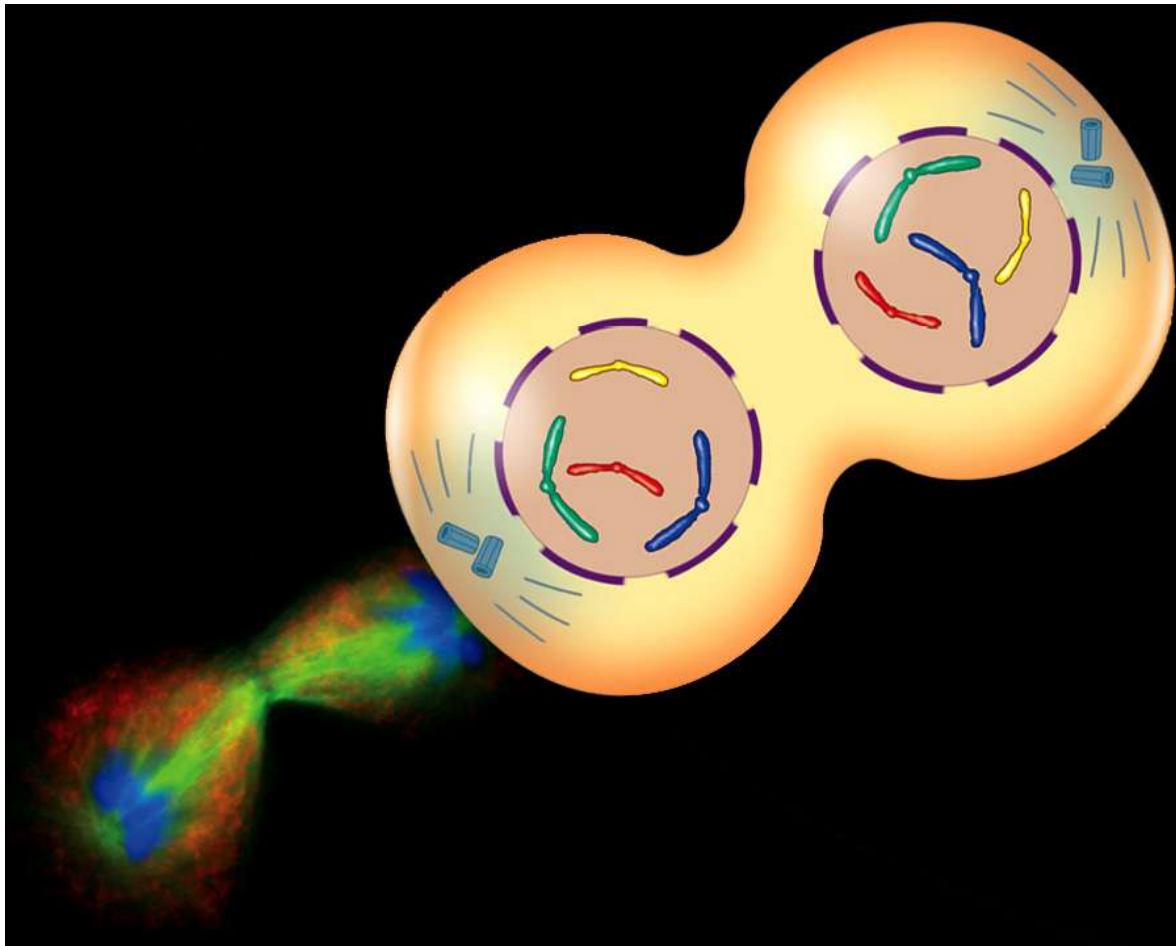
5.2 Mitosis and Cytokinesis

- 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.

