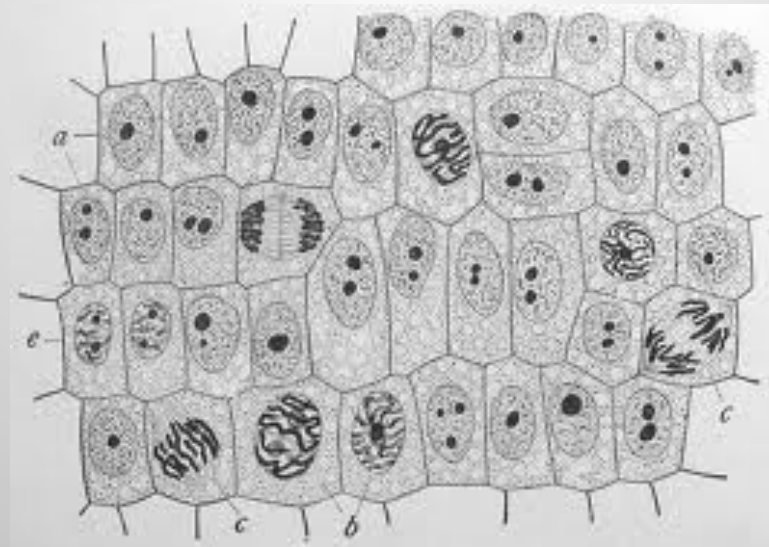


Chapter 10: Cell Growth & Division

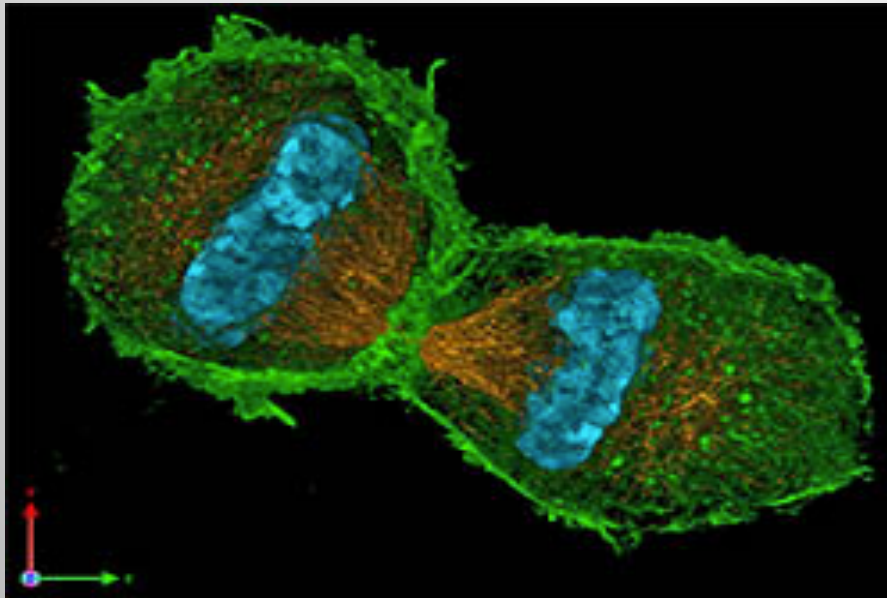
Essential Questions:

- What problems does growth cause for cells?
- What are the main events of the cell cycle?
- What are the four phases of mitosis?



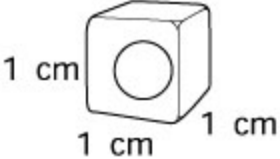
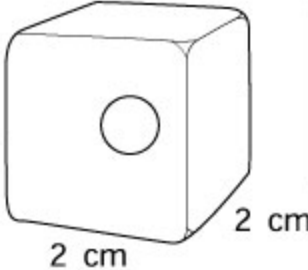
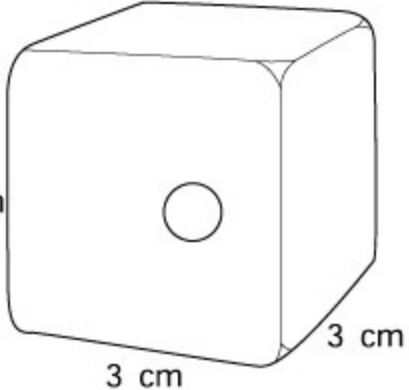
10–1 Cell Growth

- Limits to Cell Growth
 - DNA “Overload”
 - Exchanging Material
 - Ratio of Surface Area to Volume
- Cell Division



Ratio of Surface Area to Volume in Cells

Section 10-1

Cell Size			
Surface Area (length x width x 6)	$1 \text{ cm} \times 1 \text{ cm} \times 6$ $= 6 \text{ cm}^2$	$2 \text{ cm} \times 2 \text{ cm} \times 6$ $= 24 \text{ cm}^2$	$3 \text{ cm} \times 3 \text{ cm} \times 6 = 54 \text{ cm}^2$
Volume (length x width x height)	$1 \text{ cm} \times 1 \text{ cm} \times 1 \text{ cm}$ $= 1 \text{ cm}^3$	$2 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$ $= 8 \text{ cm}^3$	$3 \text{ cm} \times 3 \text{ cm} \times 3 \text{ cm} = 27 \text{ cm}^3$
Ratio of Surface Area to Volume	$6 / 1 = 6 : 1$	$24 / 8 = 3 : 1$	$54 / 27 = 2 : 1$



10–2 Cell Division

- Chromosomes
 - Humans
 - **chromatids**
- The Cell Cycle
- Events of the Cell Cycle – see diagram
- Mitosis
 - Prophase
 - Metaphase
 - Anaphase
 - Telophase
- Cytokinesis

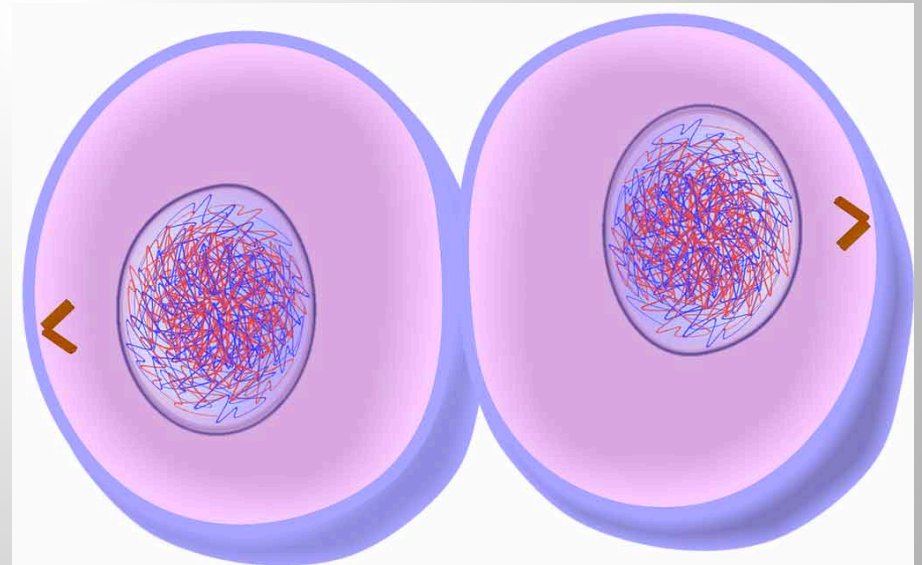
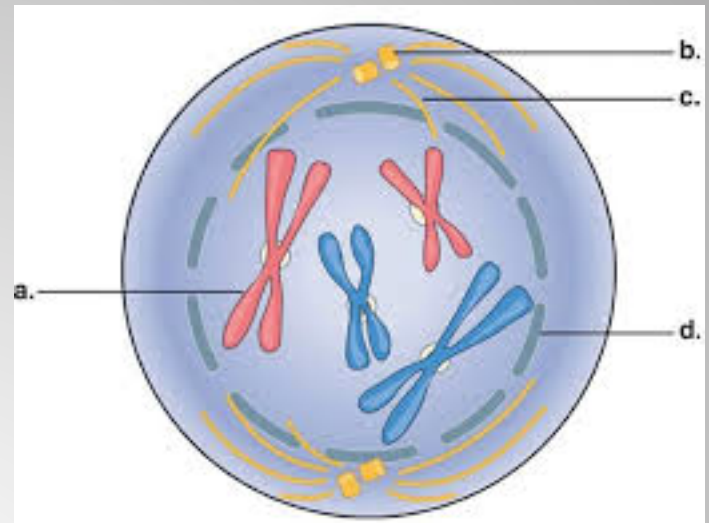


Figure 10-4 The Cell Cycle

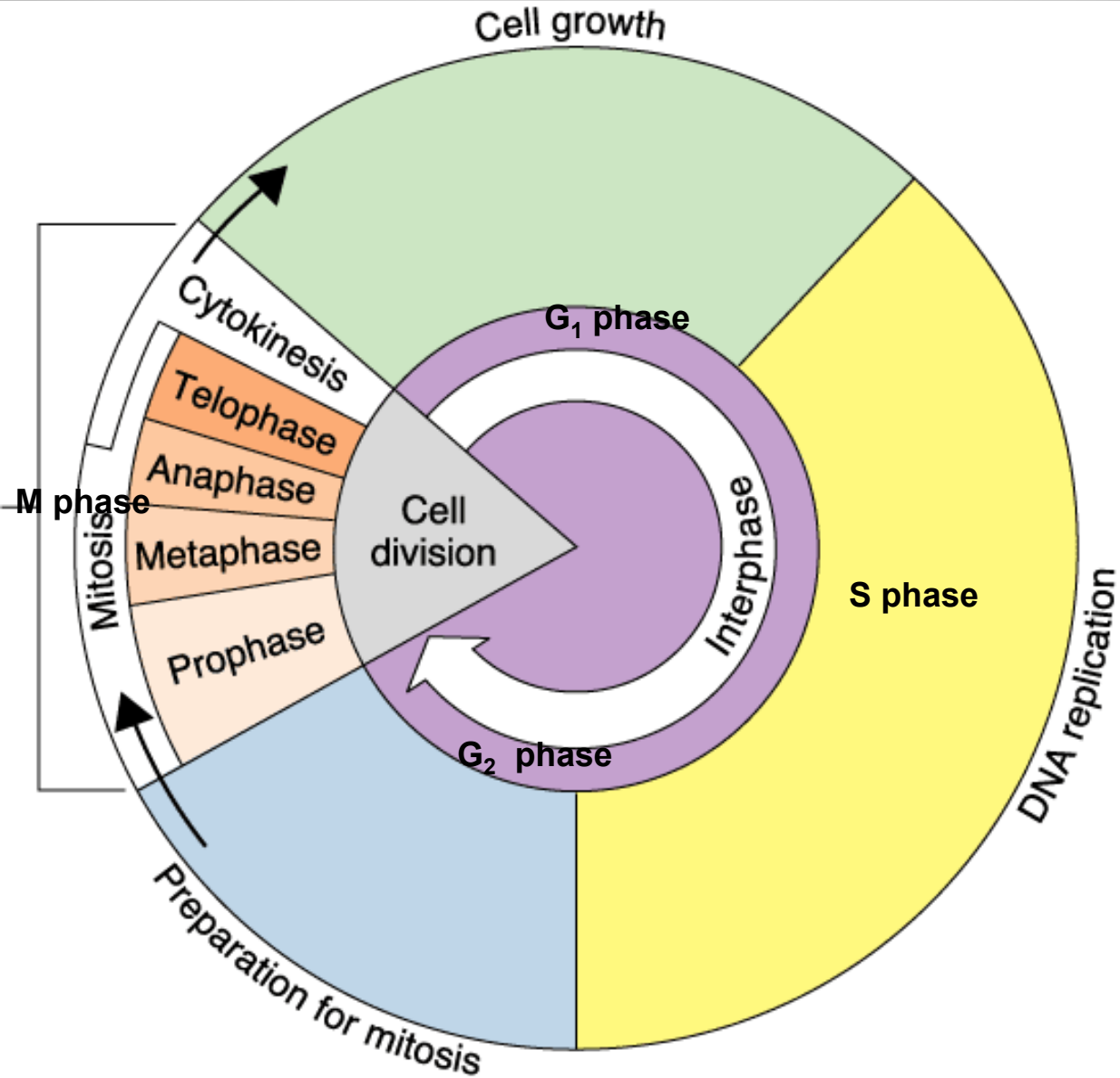


Figure 10-5 Mitosis and Cytokinesis

Section 10-2

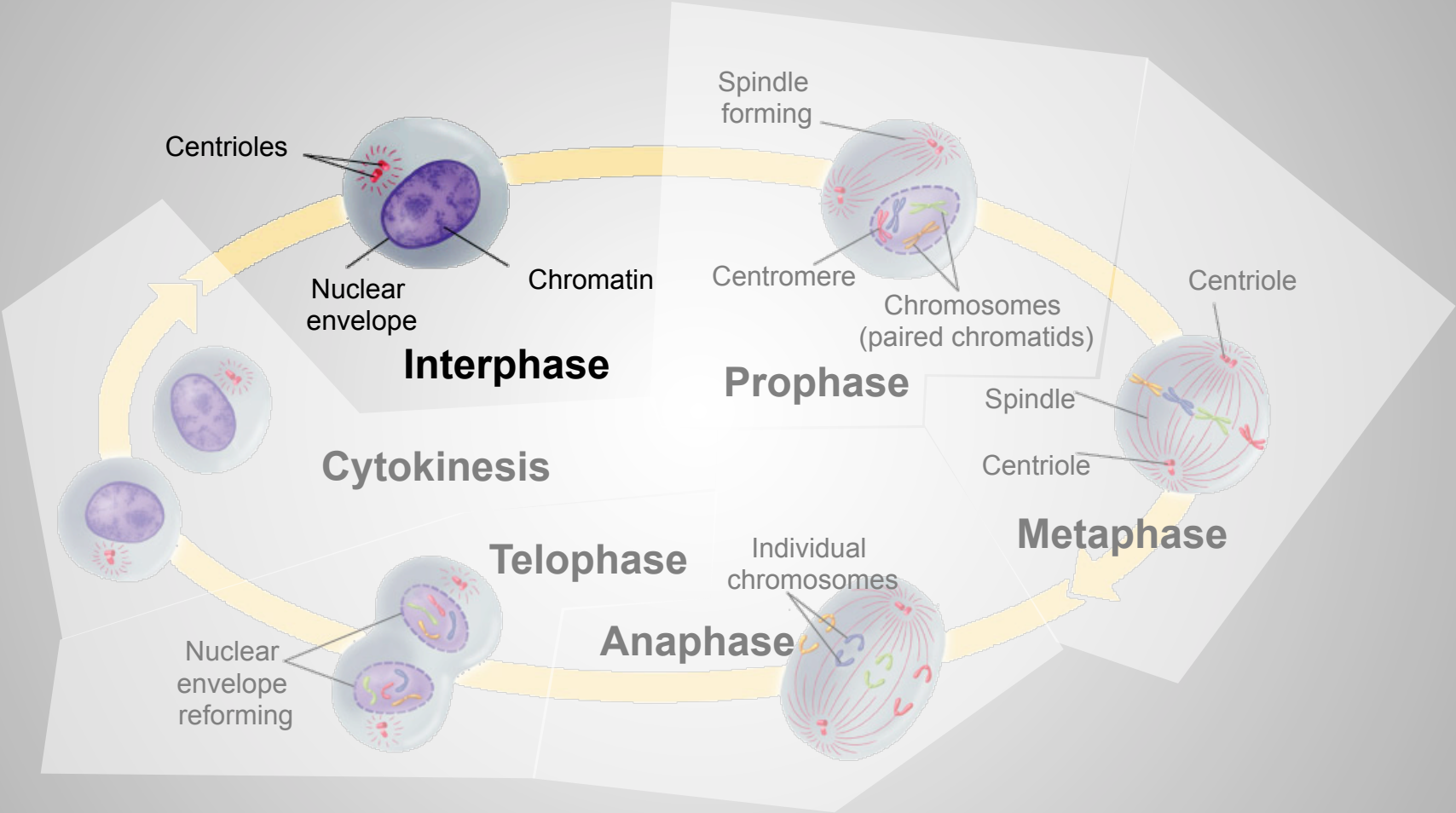


Figure 10-5 Mitosis and Cytokinesis

Section 10-2

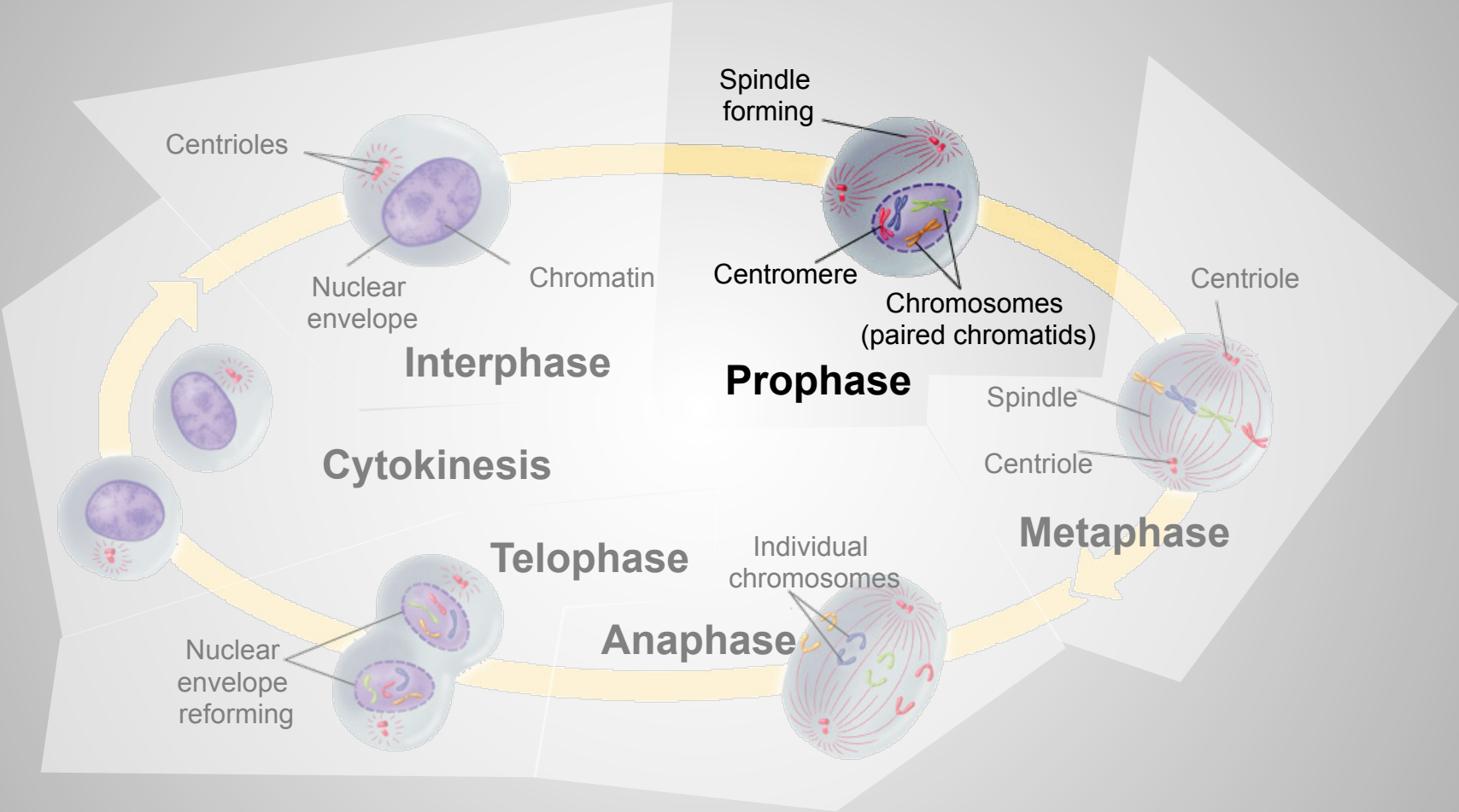


Figure 10-5 Mitosis and Cytokinesis

Section 10-2

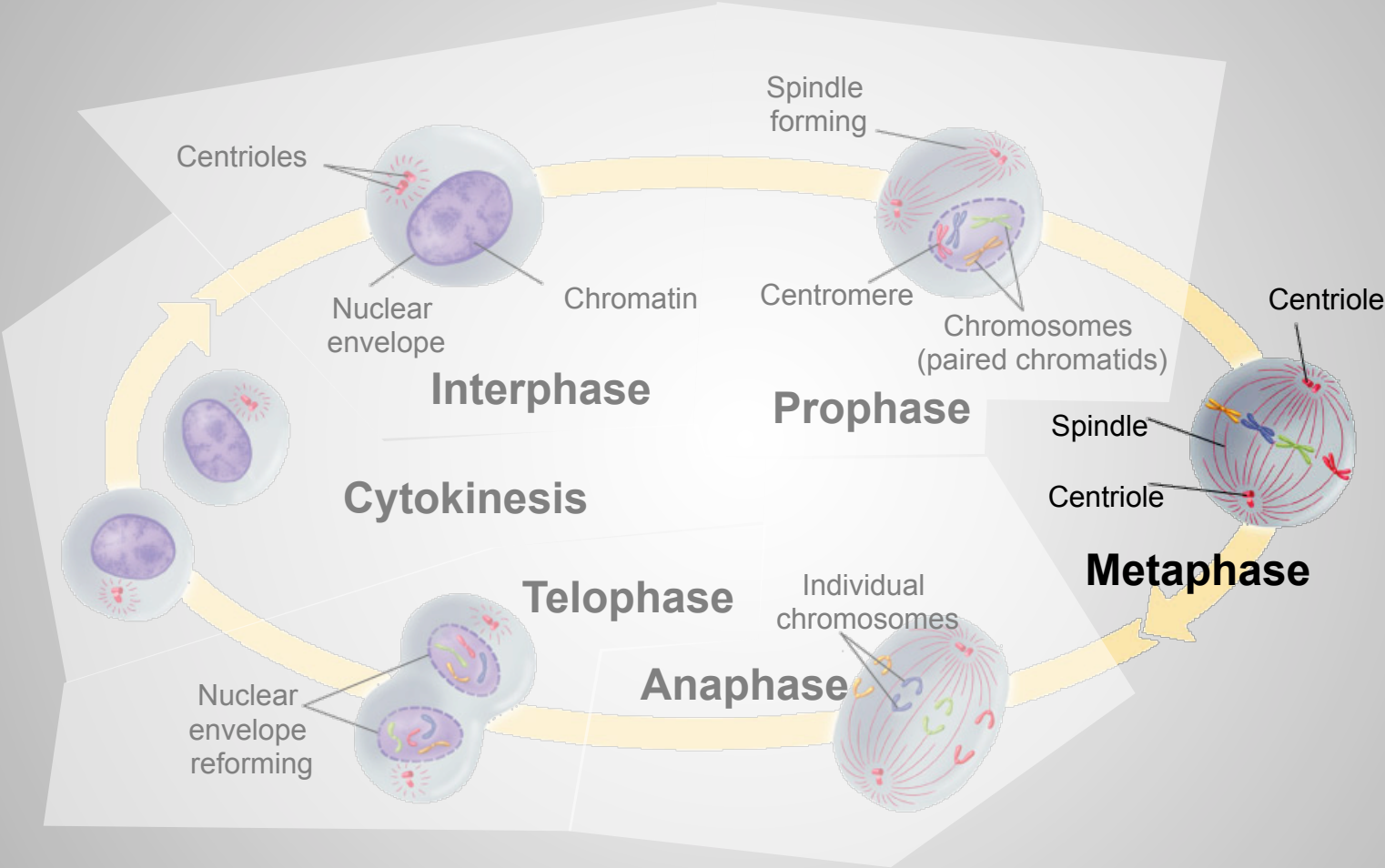


Figure 10-5 Mitosis and Cytokinesis

Section 10-2

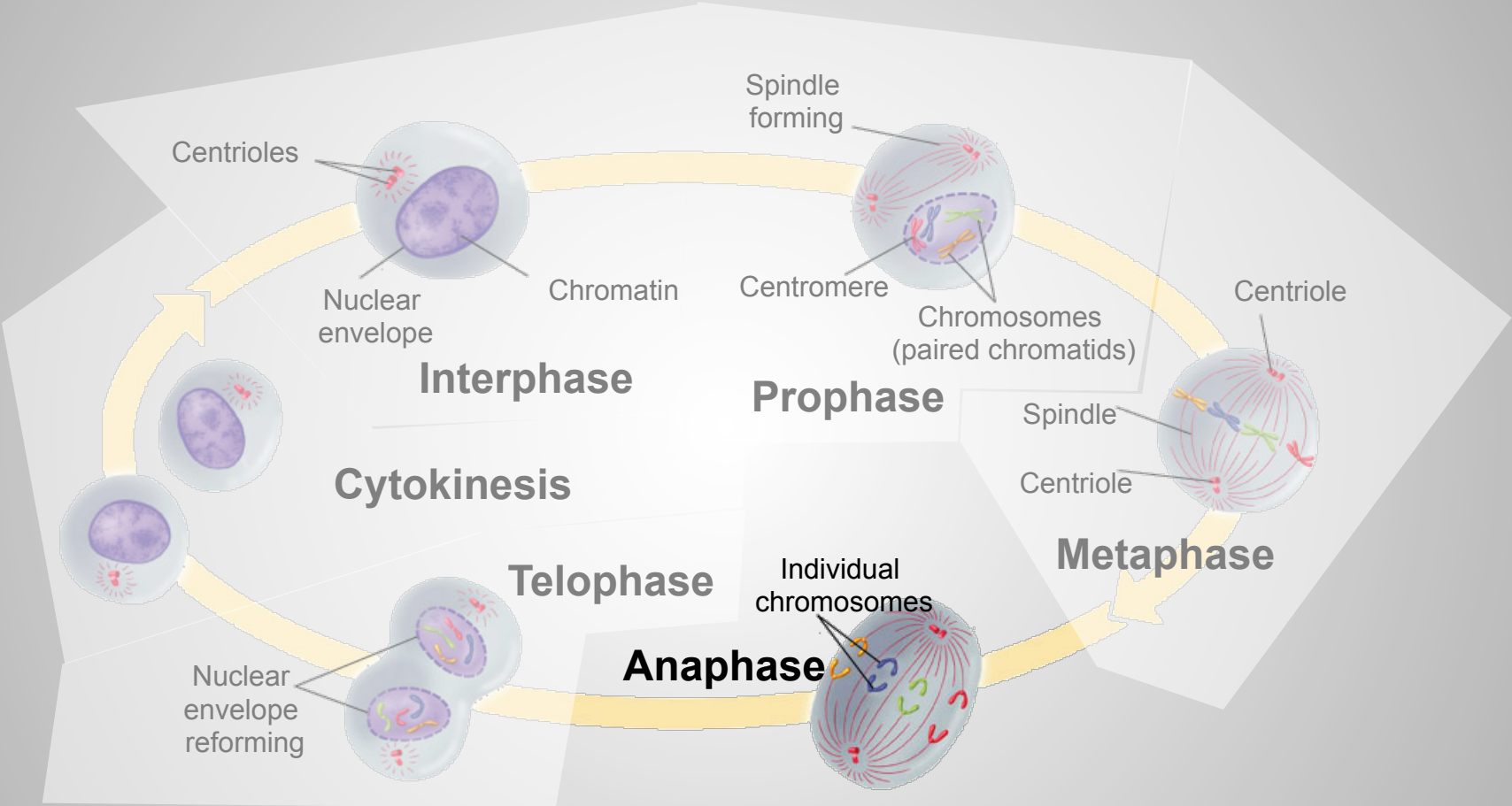


Figure 10-5 Mitosis and Cytokinesis

Section 10-2

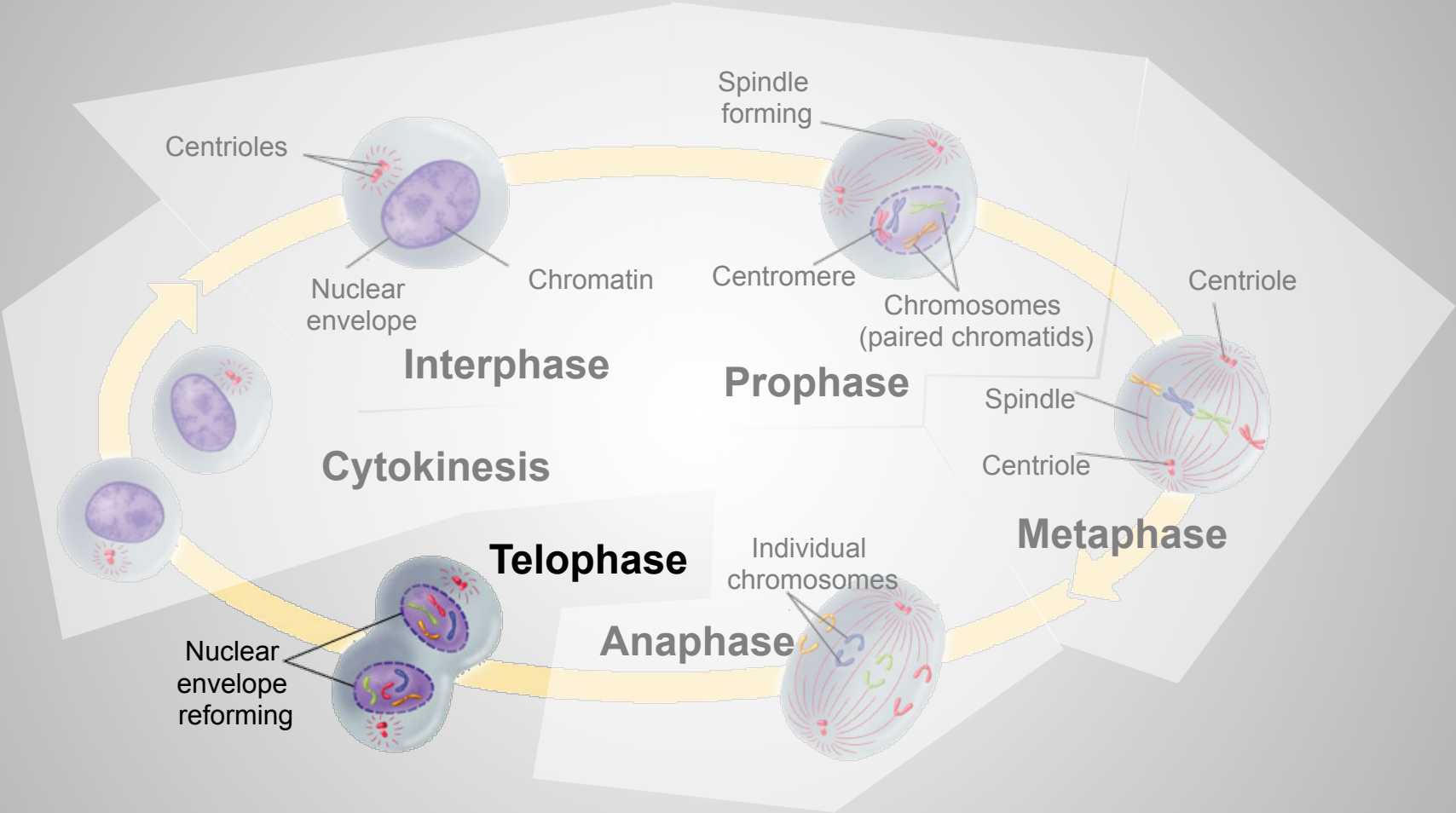


Figure 10-5 Mitosis and Cytokinesis

Section 10-2

