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# Section 7–2 Eukaryotic Cell Structure

## (pages 174–181)

**Key Concept**

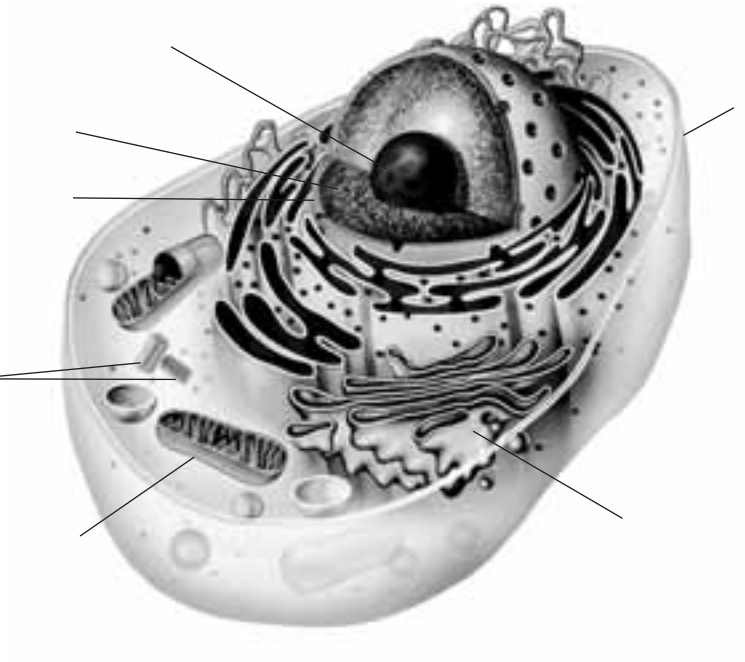
- What are the functions of the major cell structures?

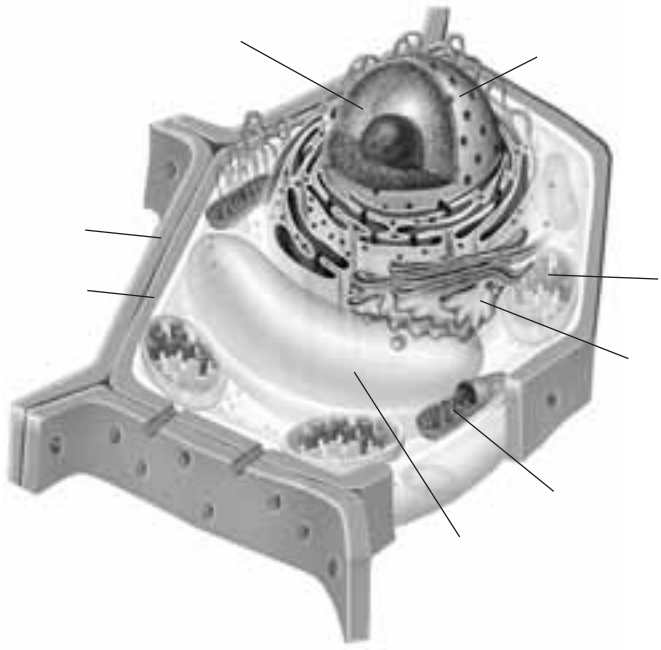
## Comparing a Cell to a Factory (page 174)

**1.** What is an organelle? _____

_____

**2.** Label the structures on the illustrations of the plant and animal cells.





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3. Circle the letter of each structure that animal cells contain.
   - **a.** chloroplasts
   - **b.** lysosomes
   - **c.** mitochondria
   - **d.** ER
4. Circle the letter of each structure that plant cells contain.
   - **a.** cell wall
   - **b.** ER
   - **c.** lysosomes
   - **d.** chloroplast

## Nucleus (page 176)

5. What is the function of the nucleus? _____
6. What important molecules does the nucleus contain? _____
7. The granular material visible within the nucleus is called _____.
8. What does chromatin consist of? _____
9. What are chromosomes? _____
10. Most nuclei contain a small, dense region known as the _____.
11. What occurs in the nucleolus? _____
12. What is the nuclear envelope? _____

## Ribosomes (page 177)

13. What are ribosomes? _____

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## Endoplasmic Reticulum (pages 177–178)

**14.** What is the difference between rough ER and smooth ER? _____

_____

_____

## Golgi Apparatus (page 178)

**15.** Using the cell as a factory analogy, describe the role of the Golgi apparatus in the cell.

_____

_____

_____

## Lysosomes (page 179)

**16.** Circle the letter of each sentence that is true about lysosomes.

**a.** They contain enzymes that help synthesize lipids.

**b.** They break down organelles that have outlived their usefulness.

**c.** They produce proteins that are modified by the ER.

**d.** They contain enzymes that break down lipids, carbohydrates, and proteins.

## Vacuoles (page 179)

**17.** What are vacuoles? _____

_____

_____

**18.** What is the role of the central vacuole in plants? _____

_____

_____

**19.** How does the contractile vacuole in a paramecium help maintain homeostasis?

_____

_____

## Mitochondria and Chloroplasts (pages 179–180)

**20.** Is the following sentence true or false? Both chloroplasts and mitochondria are enclosed by two membranes. _____

**21.** Chloroplasts and mitochondria contain their own genetic information in the form of _____.

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**22.** What are mitochondria? _____

_____

_____

**23.** Are mitochondria found in plant cells, animal cells, or both? _____

**24.** Where are chloroplasts found? _____

_____

**25.** Biologist Lynn Margulis has suggested that mitochondria and chloroplasts are descendants of what kind of organisms? _____

_____

## Cytoskeleton (page 181)

**26.** What is the cytoskeleton? _____

_____

_____

**27.** Complete the table about structures that make up the cytoskeleton.

**STRUCTURES OF THE CYTOSKELETON**

| Structure | Description | Functions |
|---|---|---|
| | | Maintain cell shape, help build cilia and flagella, form centrioles in cell division |
| | | Support the cell, help cells move |

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*Match the organelle with its description.*

| Organelle | Description |
|---|---|
| _____ **28.** Ribosome | **a.** Uses energy from sunlight to make energy-rich food |
| _____ **29.** Endoplasmic reticulum | **b.** Stack of membranes in which enzymes attach carbohydrates and lipids to proteins |
| _____ **30.** Golgi apparatus | **c.** Uses energy from food to make high-energy compounds |
| _____ **31.** Lysosome | **d.** An internal membrane system in which components of cell membrane and some proteins are constructed |
| _____ **32.** Vacuole | **e.** Saclike structure that stores materials |
| _____ **33.** Chloroplast | **f.** Small particle of RNA and protein that produces protein following instructions from nucleus |
| _____ **34.** Mitochondrion | **g.** Filled with enzymes used to break down food into particles that can be used |

## Reading Skill Practice

A flowchart can help you remember the order in which events occur. On a separate sheet of paper, create a flowchart that describes how proteins are made in the cell. You will find that the steps of this process are explained on pages 176–178. For more information about flowcharts, see Organizing Information in Appendix A in your textbook.