

Cell Organelles

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|------------------|--------------------------|
| 1. lysosomes | 2. organelles |
| 5. vacuole | 3. Endoplasmic reticulum |
| 6. wall | 4. cell |
| 8. chloroplasts | 7. cytoplasm |
| 11. mitochondria | 8. cytoskeleton |
| 12. membrane | 9. nucleus |
| 14. ribosomes | 10. Golgi |
| | 13. rough |

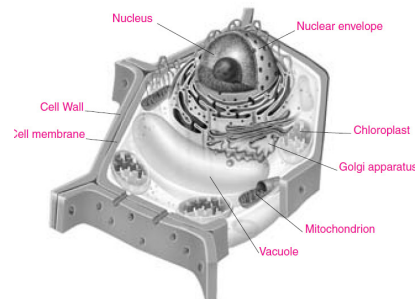
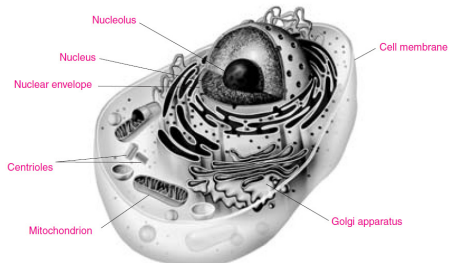
Section 7-2 Eukaryotic Cell Structure (pages 174-181)

- Key Concept
- What are the functions of the major cell structures?

Comparing a Cell to a Factory (page 174)

1. What is an organelle? It is a structure in eukaryotic cells that acts as if it is a specialized organ.

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



3. Circle the letter of each structure that animal cells contain.

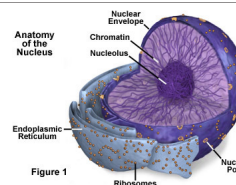
- a. chloroplasts
- b. lysosomes**
- c. mitochondria**
- d. ER**

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? It is the control center of the cell.
6. What important molecules does the nucleus contain? It contains DNA.
7. The granular material visible within the nucleus is called chromatin.
8. What does chromatin consist of? It consists of DNA bound to protein.
9. What are chromosomes? They are distinct, threadlike structures formed of condensed chromatin that contain genetic information that is passed from one generation of cells to the next.
10. Most nuclei contain a small, dense region known as the nucleolus.
11. What occurs in the nucleolus? This is where the assembly of ribosomes begins.
12. What is the nuclear envelope? It is a double-membrane layer that surrounds the nucleus.



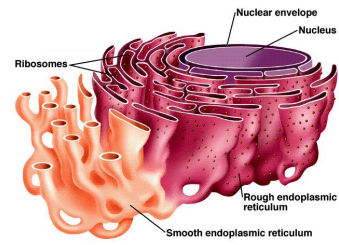
Ribosomes (page 177)

13. What are ribosomes? Ribosomes are small particles of RNA and protein found throughout the cytoplasm that are involved in protein synthesis.

RNA + proteins

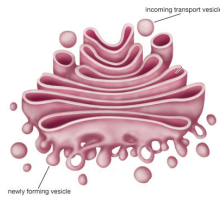
Endoplasmic Reticulum (pages 177-178)

14. What is the difference between rough ER and smooth ER? Ribosomes are found on the surface of rough ER. There are no ribosomes on smooth ER.



Golgi Apparatus (page 178)

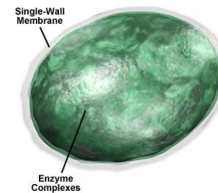
15. Using the cell as a factory analogy, describe the role of the Golgi apparatus in the cell. The Golgi apparatus is like a customization shop, where the finishing touches are put on proteins before they are ready to leave the cell "factory."



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.

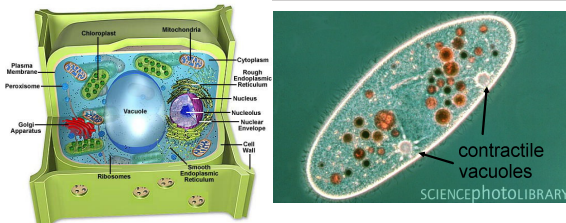


Vacuoles (page 179)

17. What are vacuoles? Vacuoles are saclike structures that store materials such as water, salts, proteins, and carbohydrates.

18. What is the role of the central vacuole in plants? When the central vacuole is filled with liquid, the pressure within the vacuole supports the heavy structures of the plant, such as leaves and flowers.

19. How does the contractile vacuole in a paramecium help maintain homeostasis? By contracting rhythmically, the contractile vacuole pumps excess water out of the cell.



Mitochondria and Chloroplasts (pages 179-180)

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

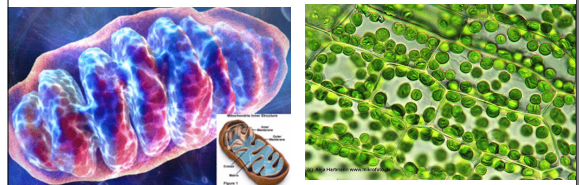
21. Chloroplasts and mitochondria contain their own genetic information in the form of small DNA molecules.

22. What are mitochondria? Mitochondria are organelles that convert the chemical energy stored in food into compounds that are more convenient for the cell to use.

23. Are mitochondria found in plant cells, animal cells, or both? Mitochondria are found in both.

24. Where are chloroplasts found? Chloroplasts are found in plant cells and some other organisms but not in animal cells.

25. Biologist Lynn Margulis has suggested that mitochondria and chloroplasts are descendants of what kind of organisms? They are descendants of ancient prokaryotes.



Cytoskeleton (page 181)

26. What is the cytoskeleton? It is a network of protein filaments that helps the cell to maintain its shape.

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

STRUCTURES OF THE CYTOSKELETON

Structure	Description	Functions
Microtubules	Hollow tubes of tubulins	Maintain cell shape, help build cilia and flagella, form centrioles in cell division
Microfilaments	Threadlike structures made of actin	Support the cell, help cells move

