

Ch 7. Cell Structure & Function. Biology

Pseudonym (and real name) _____ Per _____

Reading Guide: Chapter 7. pp. 168-192

7.1 Cell Theory {pp. 169-172}

1. Summarize the work of van Leeuwenhoek below:

2. Who was Robert Hooke, when did he work and what did he do?

3. How did he make his discovery?

4. How are the conclusions made by Schleiden and Schwann different?

5. Virchow, a German doctor, studied _____. He summarized his life's work by saying, "_____".

6. The discoveries of Schleiden, Schwann and Virchow, among others, form the _____.

8. The cell theory has _____ parts. They are as follows:

9. What is the average diameter range of a typical cell?

10. In the space below, compare and contrast the cell membrane and the cell wall.

11. What does the nucleus of a cell do?

12. Name and describe what biologists call the material inside the cell membrane excluding the nucleus.

7-2

Ch. 7. Cell Structure & Function. Biology

13. Complete the table about the two categories of cells.

TWO CATEGORIES OF CELLS

Category	Definition	Examples
	Organisms whose cells lack nuclei	
	Organisms whose cells contain nuclei	

14. Define organelle:

15. Are all eukaryotes large, multi-cellular organisms?

Ch 7. Cell Structure & Function. Biology

7.2 Cell Structures (pp. 173-183)

Cell Wall

16. In what organisms are cell walls found?
17. Do cell walls allow material to pass through them, and if so what materials can?
18. What is the function of the cell wall?

Nucleus

19. What does the nucleus control and what important molecule does it contain?
20. Why is this molecule important?
21. What is the difference between chromatin and chromosomes?
22. Most nuclei contain a small dense region know as the _____.

Cytoskeleton

23. Summarize what the cytoskeleton is and what it does
24. Name and define the two main structures that make up this cellular "skeleton".

Organelles in the Cytoplasm (pages 177-180)

25. What is the difference between rough ER and smooth ER?

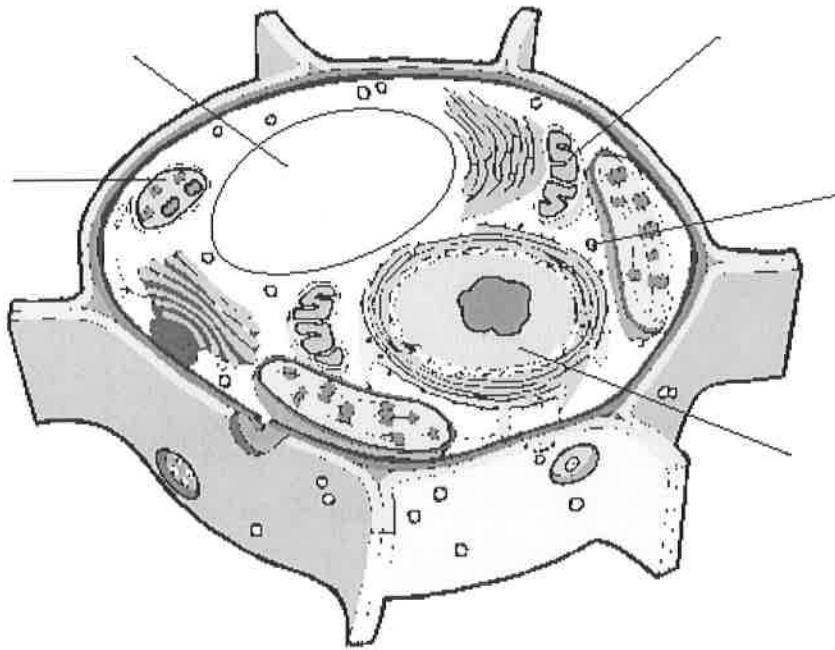
26. Match the organelle with its description

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

Ch 7. Cell Structure & Function. Biology

27. The process that occurs in chloroplasts is called

29. Label the structures on the illustration of the plant cell.



The Cell as a Factory (page 182)

30. Match the cell structure with the part of a factory it is like.

Cell Structure	Factory Part
Cytoskeleton	a. Oil-burning furnaces
Nucleus	b. Customization shop
Ribosome	c. Solar power plants
Golgi apparatus	d. Steel beams and columns
Chloroplasts	e. Factory machines
Mitochondria	f. Main office

Comparing Cells (page 183)

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

- a. chloroplasts b. lysosomes c. cytoskeleton d. ER

32. Circle the letter of each structure that plant cells contain.

- a. cell wall b. ER c. lysosomes d. chloroplast

Section 7-3 Movement Through the Membrane (pages 184-189)

This section describes the main functions of the cell membrane. It also explains what happens during diffusion and explains what osmosis is.

Cell Membrane (page 184)

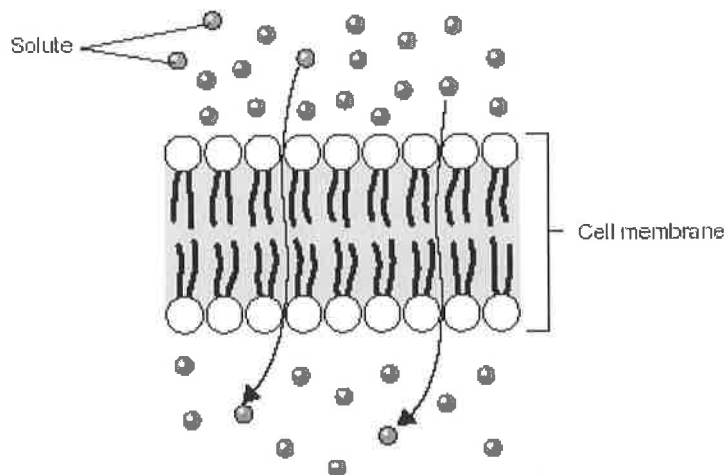
33. What are the functions of the cell membrane?

Ch 7. Cell Structure & Function. Biology

Diffusion (page 185)

34. What is diffusion?

35. The molecules of solute in the illustration are moving through the cell membrane from top to bottom. INDICATE WITH LABELS which side of the membrane has a high concentration of solute and which has a low concentration. What two things must be true about the solute to explain why it can get through the membrane without using a protein channel?



Osmosis (pages 186–187)

36. What is osmosis?

37. When will water stop moving across a membrane?

38. On which side of a selectively permeable membrane does osmosis exert a pressure?

Facilitated Diffusion (page 188)

39. What happens during the process of facilitated diffusion?

Active Transport (page 189)

40. What is active transport? What is different about active transport from passive transport?

Ch 7. Cell Structure & Function. Biology

Section 7-4 The Diversity of Cellular Life (pages 190–193)

This section explains what cell specialization is. It also describes the four levels of organization in multicellular organisms.

Unicellular Organisms (page 190)

41. Circle the letter of each sentence that is true about unicellular organisms.
- a. Some types of algae are single-celled.
 - b. They include prokaryotes and eukaryotes.
 - c. Some even live within the human body.
 - d. They can grow but cannot reproduce.

Multicellular Organisms (page 191)

42. What is cell specialization in a multicellular organism?

Levels of Organization (pages 192–193)

43. What are four levels of organization in a multicellular organism?
44. What is a tissue?
45. What are the four main types of tissue in multicellular organisms?
46. What is the function of epithelial tissues?
47. Circle the letter of each type of connective tissue.
a. blood b. skin c. bone d. lymph
48. Groups of tissues that work together to perform a specific function are called a(an)
49. What is an organ system?