

Study Guide

CHAPTER 7

Section 1: Cell Discovery and Theory

In your textbook, read about the history of the cell theory and microscope technology.

Respond to each statement.

- Name** the invention that helped scientists discover the cell.

- Tell** why Hooke called the structures he saw in the cork *cellulae* (“small rooms”).

- Name** the type of microscope that uses a series of magnifying lenses.

Write the term or phrase that best completes each statement. Use these choices:

cell theory cells daughter cells genetic material organisms

The (4) _____ includes the following three principles:

- All living organisms are composed of one or more (5) _____ .
- Cells are the basic unit of structure and organization of all living (6) _____ .
- Cells arise only from previously existing cells, with cells passing copies of their (7) _____ on to their (8) _____ .

In your textbook, read about basic cell types.

Complete the table by checking the correct column(s) for each description.

Description	Prokaryotes	Eukaryotes
9. Organisms that break down molecules to generate energy		
10. Organisms that have cells lacking internal membrane-bound organelles		
11. Organisms whose cells do not have nuclei		
12. Organisms that are either unicellular or multicellular		
13. Organisms that are generally unicellular		
14. Organisms that have cells containing organelles		
15. Organisms that have plasma membranes		

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Section 2: The Plasma Membrane

In your textbook, read about the function of the plasma membrane.

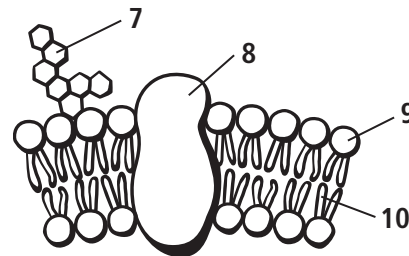
Complete the table by checking the correct column(s) for each description.

Description	Selective Permeability	Homeostasis	Plasma Membrane
1. The process of maintaining balance inside a cell			
2. A boundary between a cell and its environment			
3. The feature of the plasma membrane that keeps some substances out			
4. Separates prokaryotic and eukaryotic cells from the watery environment in which they exist			
5. The quality of a plasma membrane that allows oxygen and glucose to move in			
6. Maintained by the plasma membrane			

In your textbook, read about the structure of the plasma membrane.

Label the diagram of the plasma membrane. Use these choices:

- carbohydrate chain nonpolar tails polar head transport protein
7. _____
8. _____
9. _____
10. _____



Match the definition or description in Column A with the term in Column B.

- Column A**
- _____ 11. make up most of the molecules in the plasma membrane
- _____ 12. a molecule that has a glycerol backbone, two fatty acid chains, and a phosphate-containing compound
- _____ 13. move substances through the plasma membrane
- _____ 14. two layers of phospholipids arranged tail-to-tail
- _____ 15. the phospholipid “sea” in which embedded substances float

- Column B**
- A. transport proteins
- B. lipids
- C. phospholipid
- D. fluid mosaic model
- E. phospholipid bilayer

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Section 3: Structures and Organelles

In your textbook, read about structures and organelles.

Label the diagram of a typical animal cell. Use these choices:

cytoplasm

endoplasmic reticulum

Golgi apparatus

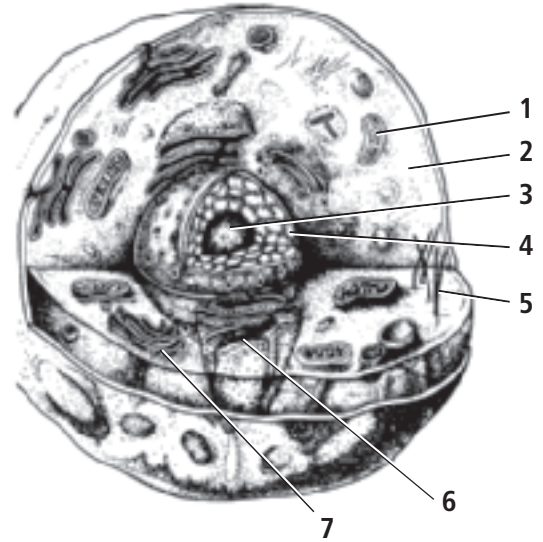
microtubules

mitochondrion

nucleolus

nucleus

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____



If the statement is true, write true. If the statement is false, replace the italicized word or phrase to make it true.

8. Microtubules are long, hollow protein cylinders that form *a rigid skeleton for the cell*.

9. The *Golgi apparatus* contains most of the cell's DNA.

10. The nucleolus is the structure that produces *sugars*.

11. The *endoplasmic reticulum* is a stack of membranes that packages proteins into sacs called vesicles.

12. The *cytoplasm* is the semifluid internal environment of the cell.

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Section 4: Cellular Transport

In your textbook, read about cellular transport.

Match the definition in Column A with the term in Column B.

Column A	Column B
_____ 1. moves small molecules across the plasma membrane using transport proteins	A. osmosis
_____ 2. involves water moving across the plasma membrane to the side with the greater solute concentration	B. exocytosis
_____ 3. occurs when substances move against the concentration gradient; requires energy and the aid of carrier proteins	C. facilitated diffusion
_____ 4. occurs when the plasma membrane surrounds a large substance inside the cell and moves it outside the cell	D. dynamic equilibrium
_____ 5. the condition that results when diffusion continues until the concentrations are the same in all areas	E. active transport
_____ 6. occurs when the plasma membrane surrounds a large substance outside the cell and moves it inside the cell	F. endocytosis

In your textbook, read about osmosis.

Complete the table by checking the correct column(s) for each description.

Description	Isotonic Solution	Hypotonic Solution	Hypertonic Solution
7. A solution that has the same osmotic concentration as a cell's cytoplasm			
8. A solution that causes a cell to shrivel			
9. A solution that causes a cell to swell			
10. A solution that neither shrinks nor swells a cell			
11. A solution in which there is more water outside the cell than inside the cell			
12. A solution that causes water to move out of a cell			