

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.

1. Name the invention that helped scientists discover the cell.

2. Tell why Hooke called the structures he saw in the cork *cellulae* ("small rooms").

3. 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:

1. All living organisms are composed of one or more (5) _____.

2. Cells are the basic unit of structure and organization of all living

(6) _____.

3. 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 | | |

Study Guide

CHAPTER 7

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:

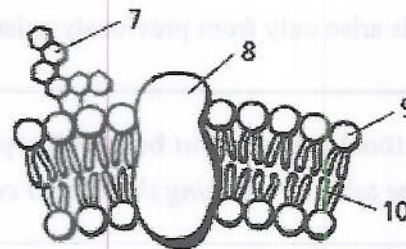
carbohydrate chain

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

Study Guide**CHAPTER 7****Section 3: Cellular Transport**

In your textbook, read about cellular transport.

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

Column A

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

Column B

- A. osmosis
- B. exocytosis
- C. facilitated diffusion
- D. dynamic equilibrium
- E. active transport
- 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 | | | |

Study Guide

CHAPTER 7

Section 4: Structures and Organelles

In your textbook, read about structures and organelles.

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

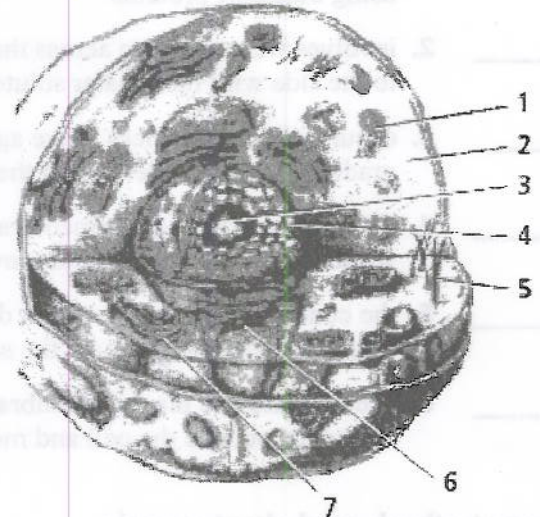
cytoplasm
mitochondrion

endoplasmic reticulum
nucleolus

Golgi apparatus
nucleus

microtubules

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.
