

SECTION 4-1 REVIEW**INTRODUCTION TO THE CELL****VOCABULARY REVIEW** Define the following terms.

1. organelle _____

2. nucleus _____

3. eukaryote _____

4. prokaryote _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. One early piece of evidence supporting the cell theory was the observation that
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|--|--|
| a. only plants are composed of cells. | c. cells come from other cells. |
| b. only animals are composed of cells. | d. animal cells come from plant cells. |
- _____ 2. Cells are limited in size by the
- | | |
|--|--|
| a. rate at which substances needed by the cell can enter the cell through its surface. | c. amount of material the cell can collect to fill itself. |
| b. rate at which the cell can manufacture genetic information. | d. amount of cell membrane the cell can produce. |
- _____ 3. The diameter of most plant and animal cells is about
- | | | | |
|-------------------------------|-----------------------------|---------------|-----------------|
| a. 0.1 to 0.2 μm . | b. 10 to 50 μm . | c. 1 to 2 mm. | d. 10 to 50 mm. |
|-------------------------------|-----------------------------|---------------|-----------------|
- _____ 4. The characteristic of a nerve cell that relates directly to its function in receiving and transmitting nerve impulses is its
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|---------------------|--|
| a. long extensions. | c. ability to change shape. |
| b. flat shape. | d. ability to engulf and destroy bacteria. |
- _____ 5. One difference between eukaryotic and prokaryotic cells is that only
- | | |
|---|---|
| a. prokaryotic cells are surrounded by a cell membrane. | c. eukaryotic cells have genetic information. |
| b. prokaryotic cells have a nucleus. | d. eukaryotic cells have membrane-bound organelles. |

SHORT ANSWER Answer the questions in the space provided.

1. State the three parts of the cell theory. _____

2. How does the ability of a white blood cell to change its shape affect its function? _____

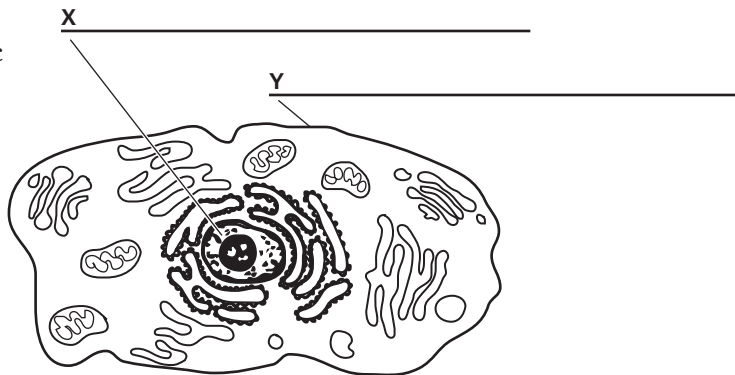
3. How are the organelles of a single cell like the organs of a multicellular organism? _____

4. Name two features of eukaryotic cells that prokaryotic cells lack. _____

5. **Critical Thinking** When a spherical cell increases in diameter from 2 μm to 20 μm , by what factor does its surface area change? By what factor does its volume change? (The surface area of a sphere = $4\pi \text{ radius}^2$, and the volume of a sphere = $4/3\pi \text{ radius}^3$. Remember that diameter = $2 \times \text{radius}$.)

STRUCTURES AND FUNCTIONS

1. These figures represent a eukaryotic cell and a prokaryotic cell. In the spaces below the diagrams, indicate which type of cell each diagram represents.



a _____

b _____

2. List two features that formed the basis for your identification of these cells.

3. Identify the structures labeled X and Y. _____