Name _____ Class _____ Date _____

SECTION 4-2 REVIEW

INTRODUCTION TO CELLS

VOCABULARY REVIEW Define the following terms.

1. organelle _____

2. nucleus _____

3. eukaryote _____

4. prokaryote _____

MULTIPLE CHOICE Write the correct letter in the blank.

_____ 1. Cells are limited in size by the

a. rate at which substances needed by the cell can enter the cell through its surface.
b. rate at which the cell can manufacture genetic information.
c. amount of material the cell can collect to fill itself.
d. amount of cell membrane the cell can produce.

_____ 2. 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.

_____ 3. The characteristic of a nerve cell that relates directly to its function in receiving and transmitting nerve impulses is its

a. long extensions.
b. flat shape.
c. ability to change shape.
d. ability to engulf and destroy bacteria.

_____ 4. One difference between eukaryotic and prokaryotic cells is that only

a. prokaryotic cells are surrounded by a cell membrane.
b. prokaryotic cells have a nucleus.
c. eukaryotic cells have genetic information.
d. eukaryotic cells have membrane-bound organelles.

Name _____ Class _____ Date _____

SHORT ANSWER Answer the questions in the space provided.

1. How is the shape of a skin cell suited to its function? _____

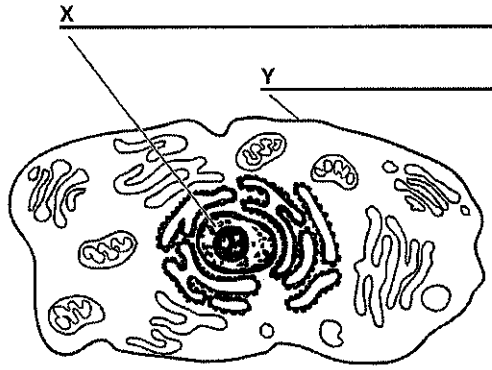
2. How are the organelles of a single cell like the organs of a multicellular organism? _____

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

4. **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 = 4π radius^2, and the volume of a sphere = $4/3\pi$ radius^3. Remember that diameter = $2 \times$ 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. _____

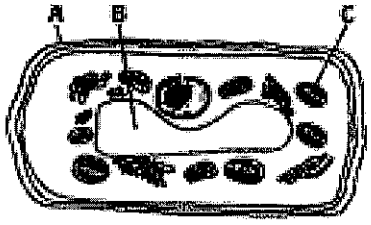
Name _____ Class _____ Date _____

Skills Worksheet

Cell Structure

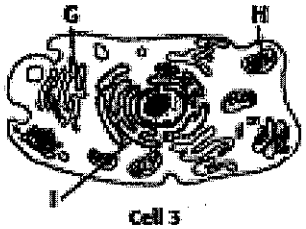
INTERPRETING DIAGRAMS

Biology students were working on a class project. They prepared copies of transmission electron micrographs of a bacterium, a plant cell, and an animal cell for display in their classroom. Unfortunately, the pictures were not labeled and got mixed up. Help these students correctly identify the cells and cell structures. Use the figures below to answer questions 1–5.



Cell 1


Cell 2



Cell 3

In the space provided, write the names of each cell's labeled structures (A–I). Using this information, write the identity of each cell—bacterium, plant cell, or animal cell.

1. Cell 1 identity _____

A. _____

B. _____

C. _____

2. Cell 2 identity _____

D. _____

E. _____

F. _____

3. Cell 3 identity _____

G. _____

H. _____

I. _____