Name _____ Date _____ Class _____

Content Mastery

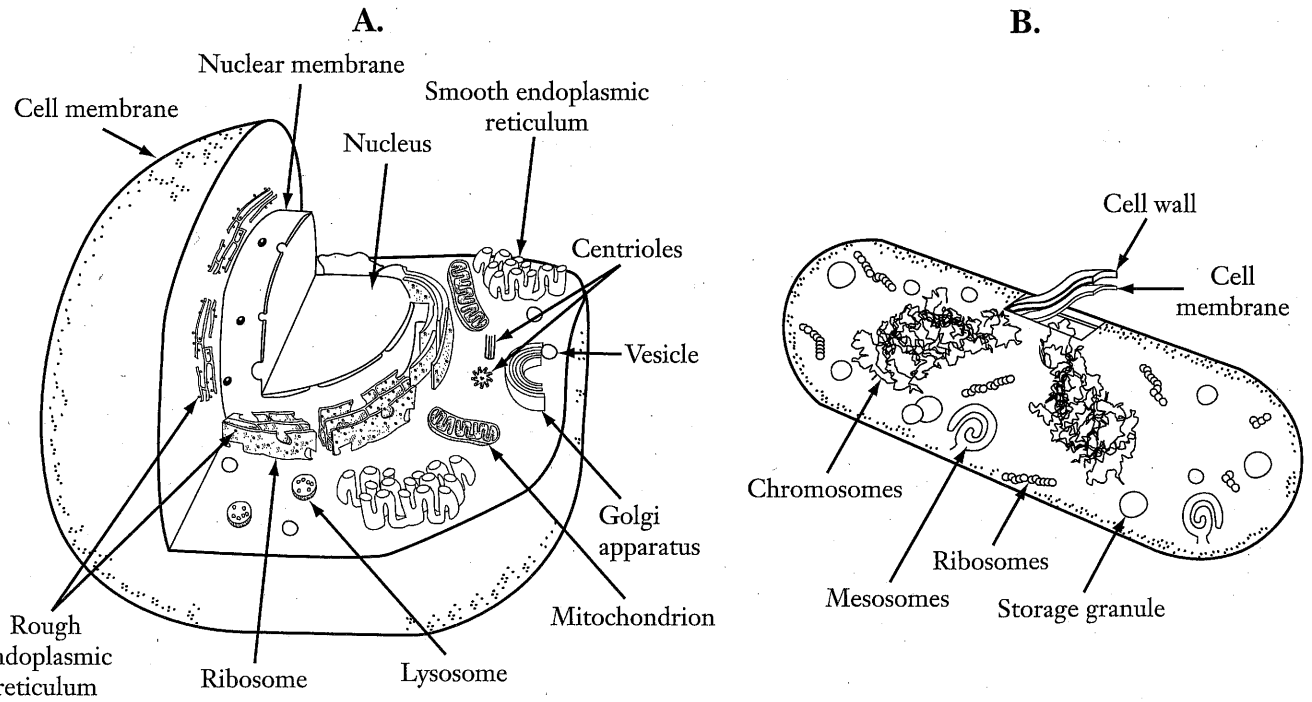
CHAPTER 8 A VIEW OF THE CELL

Get the Big Picture

Read the paragraphs in the box and study the pictures. Then answer the questions.

Cells are the smallest units of life. They come in many sizes and shapes. Cells can be found as single cells or joined together in groups as in skin cells. Prokaryotic cells were the first cells to evolve. They had very simple internal parts. Later, more complex cells, called eukaryotic cells, evolved. Eukaryotic cells have more internal parts, called organelles. Prokaryotic cells do not have organelles.

Organelles are surrounded by membranes. These organelles do different jobs for the cell such as digest food or make energy. The nucleus is a major organelle that acts like a brain. It has all the information necessary to run the cell and to make new cells. Plants and animals are made up of many kinds of eukaryotic cells that live and work together. These different kind of cells help adapt the plants and animals to living in a wide variety of environments.



1. Which cell in the picture is a prokaryotic cell? Explain your answer. _____

_____

2. Which of the two types of cells do scientists think was the first to evolve? Why do they think this? _____

_____

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Content Mastery

CHAPTER 8 A VIEW OF THE CELL

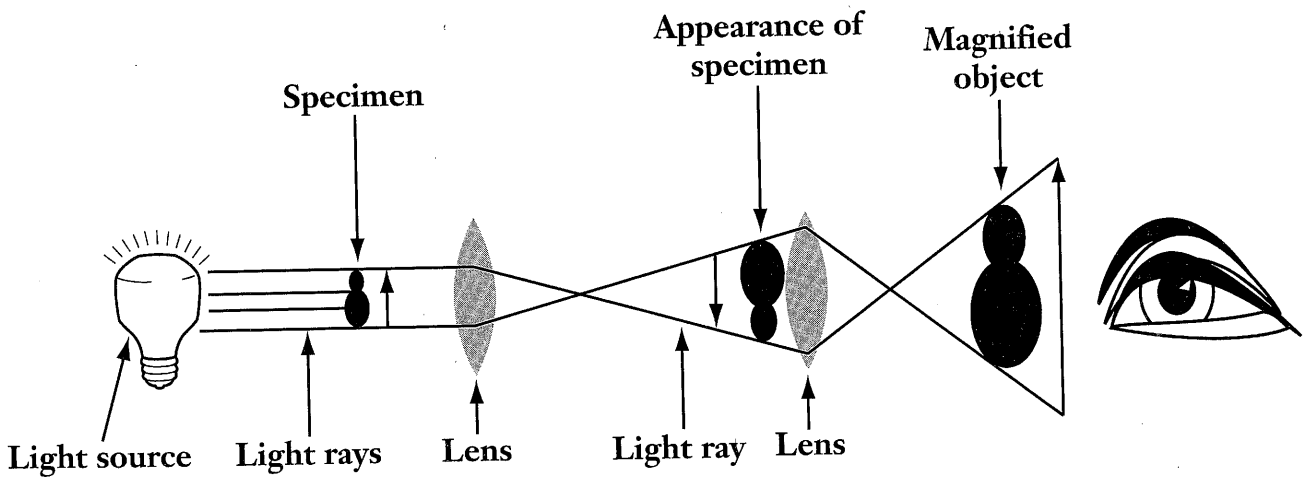
Section 8.1 The Discovery of Cells
Section 8.2 Eukaryotic Cell Structure

Study the Reading

Read the paragraph in the box and study the figure. Then answer the questions.

The first microscope was made about 300 years ago. When light rays pass through certain shapes of glass, the rays bend and change direction. Pairs of convex lenses—round pieces of glass shaped like ovals—are used in microscopes. These lenses make very tiny objects such as cells appear larger. As light passes through the first lens, the light rays bend and then cross, as you can see in the diagram. By the time the crossed light rays reach the second lens, the object is magnified—it appears bigger. If you could see the object after the light passed through the first lens, the object would seem to be upside down. When the light reaches the second lens, it bends again so that you perceive the object as right side up.

Light Microscope



1. A microscope is made up of two or more glass lenses. What do the lenses do to the light that passes through them? What does this do to the object being looked at? _____

_____

2. Why is it important to have the second lens in the microscope? _____

_____

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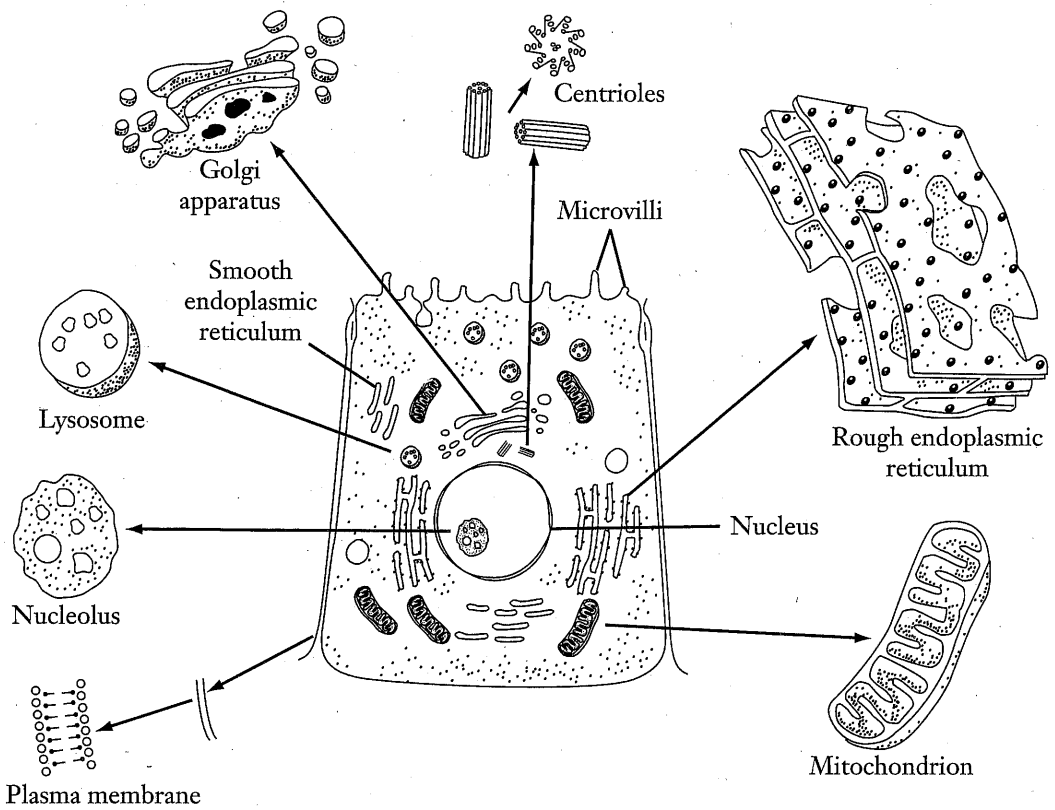
Content Mastery

CHAPTER 8 A VIEW OF THE CELL

Study the Diagram

When scientists examined the eukaryotic cell under the microscope, they discovered a small, self-contained package filled with individual parts called organelles. Some organelles make proteins; others store food. Still other organelles make and store energy. The cell is surrounded by a plasma membrane made up of many molecules that are attached to each other.

The Eukaryotic Cell



3. The Golgi apparatus receives and distributes proteins for the cell. Describe what the Golgi apparatus looks like to you. _____

_____

4. How many nuclei do you see in the cell? _____

5. According to the diagram, the plasma membrane is a solid wall that surrounds the cell. Look at the close-up of the membrane. What is it made of? _____

_____

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Content Mastery

CHAPTER 8 A VIEW OF THE CELL

Review the Key Terms

cell
cell wall
cilia (SIH lee uh)
cytoplasm
cytoskeleton
plasma membrane
microfilament
microtubule
organelle
organ
nucleus
ribosome
plastid (PLAS tud)
vacuole (VAK yew ohl)
tissue
chromatin (KROH muh tun)
flagella (fluh JEL uh)
multicellular
chlorophyll (KLOR uh fihl)
nucleolus (new KLEE uh lus)
chloroplast (KLOR uh plast)
lysosome (LI suh sohm)
eukaryote (yew KAYR ee oht)
prokaryote (proh KAYR ee oht)
Golgi apparatus (GAWL jee)
mitochondria (mi tuh KAHN dree ah)
endoplasmic reticulum (en duh PLAZ mihk • rih TIHK yuh lum)

Review the Chapter 8 key terms listed above. Match the words with the definitions below.

1. cell having a nucleus and other membrane-bound organelles _____
2. short, hairlike projections on a cell's surface that are composed of microtubules _____
3. fluid-filled space within the cytoplasm; temporarily stores food _____
4. building block of both unicellular and multicellular organisms _____
5. contains the cell's DNA and manages cell functions _____
6. green pigment that traps light energy from the sun _____
7. group of two or more tissues that perform an activity together _____
8. organelles in which food molecules are broken down to produce ATP _____
9. organisms made up of many cells _____
10. rigid structure outside the plasma membrane of plant cell _____
11. membrane sacs that receive and package proteins _____
12. serves as a boundary between the cell and its external environment _____
13. cell lacking a nucleus or other membrane-bound organelles _____