

Bio 10: 7.1 Life Is Cellular

The Discovery of the Cell

For Questions 1–6, complete each statement by writing the correct word or words.

1. The invention of the _____ made the discovery of cells possible.
2. Robert Hooke used the name _____ to refer to the tiny empty chambers he saw when he observed magnified cork.
3. German botanist Matthias Schleiden concluded that _____ are made of cells.
4. German biologist Theodor Schwann concluded that _____ are made of cells.
5. Rudolph Virchow concluded that new cells are produced from _____.
6. The _____ combines the conclusions made by Schleiden, Schwann, and Virchow.

Exploring the Cell

For Questions 7–9, write True if the statement is true. If the statement is false, change the underlined word or words to make the statement true.

- _____ 7. The size of the image formed by a light microscope is unlimited because light that passes through matter is diffracted.
- _____ 8. Fluorescent dyes help scientists see the movement of compounds and structures in living cells.
- _____ 9. Transmission electron microscopes form a 3-D image of the surface of a specimen.

10. **THINK VISUALLY** In the second row of the table, draw diagrams to show how a sample of three yeast cells would look in the types of micrographs indicated in the top row of the table. Then, in the third row, describe how each image would be formed.

A Comparison of Detail in Basic Types of Micrographs		
Light Micrograph (LM 500x)	Transmission Electron Micrograph (TEM 4375x)	Scanning Electron Micrograph (SEM 3750x)
A light microscope image is formed by _____ _____ _____.	A transmission electron micro- scope image is formed by _____ _____ _____.	A scanning electron micro- scope image is formed by a _____ _____ _____.

11. To study cells with a light microscope, different types of stains are usually available. Why is it generally more useful to stain eukaryotic cells than prokaryotic cells?

Prokaryotes and Eukaryotes

12. Complete the table about the two categories of cells.

Two Categories of Cells			
Category	Definition	Size range	Examples
Prokaryotic cells			
Eukaryotic cells			

13. Which category of cells—prokaryotic or eukaryotic—is your body composed of?

Apply the Big idea

14. Recall that in science, a theory is a well-tested explanation that unifies a broad range of observations and hypotheses and enables scientists to make accurate predictions about new situations. How does the cell theory demonstrate this definition of theory?
