

Key Concept Builder 

Exploring Life

Key Concept How did microscopes change our ideas about living things?

Directions: Answer each question on the lines provided.

1. How is a magnifying lens similar to the first microscope invented?

2. What did the invention of microscopes allow people to see?

3. Leeuwenhoek’s microscope could magnify an image about 270 times its original size. What kinds of objects did he observe with his microscope?

4. In the 1700s, what important discovery about living things did Hooke make using his microscope?

5. What can scientists today study about living things using microscopes?

Key Concept Builder **Exploring Life**

Key Concept What are the types of microscopes, and how do they compare?

Directions: On each line, write the term from the word bank that correctly completes each sentence. Some terms may be used more than once.

compound microscope

electron microscope

light microscope

scanning electron microscope

transmission electron microscope

1. A simple _____ uses one lens to magnify an image.
2. The magnification of a(n) _____ is found by multiplying the magnification of the ocular lens by the magnification of the objective lens.
3. A(n) _____ is a type of light microscope.
4. A TEM is one type of _____.
5. In a(n) _____, electrons bounce off an object.
6. In a(n) _____, electrons pass through an object.
7. A(n) _____ produces a three-dimensional image of a cell's surface.
8. A(n) _____ produces an image of the tiny structures inside a cell.
9. The two main types of microscopes are the _____ and the _____.

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LESSON 3

Exploring Life

Key Concept What are the types of microscopes, and how do they compare?

Directions: Answer each question or respond to each statement on the lines provided. Compare your responses with a partner's responses.

1. Suppose you want to observe the movements of a unicellular organism. **Explain** which type of microscope you would use and why.

2. What is the difference between magnification and resolution?

3. **Compare** the magnification and resolution of a light microscope with those of an electron microscope. Include specific magnifications and resolutions.

4. What are a micrometer and a nanometer?

5. Give three examples of how people use microscopes today.

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Exploring Life

Key Concept What are the types of microscopes, and how do they compare?

Directions: Complete the table by writing the correct terms on the lines provided.

Two Main Types of Microscopes	Specific Types
Light microscopes	1. _____ 2. _____
Electron microscopes	3. _____ 4. _____

Directions: Write the types of microscopes you would use for the following on the lines provided. Be as specific as possible. Discuss your answers with a partner.

5. You want to view a white blood cell magnified 100,000 times.

6. You want to view living yeast cells.

7. You want to view the detail of a three-dimensional image of the outside of a cell.

8. You want to view a white blood cell magnified 1,000 times.

9. You want to view the detail of the tiny structures inside a cell.
