**KEY CONCEPT**
Technology continually changes the way biologists work.

**MAIN IDEA:** Imaging technologies provide new views of life.
Compare and contrast the different types of microscopes and medical imaging techniques.

<table>
<thead>
<tr>
<th>Type of Technology</th>
<th>Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Light microscope (LM)</td>
<td>1.</td>
</tr>
<tr>
<td>Scanning electron microscope (SEM)</td>
<td>2.</td>
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<tr>
<td>Transmission electron microscope (TEM)</td>
<td>3.</td>
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<tr>
<td>X-ray</td>
<td>4.</td>
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<tr>
<td>Magnetic resonance imaging (MRI)</td>
<td>5.</td>
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</tbody>
</table>

**VOCABULARY**
- microscope
- molecular genetics
- gene
- genomics
Section 1.4 STUDY GUIDE CONTINUED

MAIN IDEA: Complex systems are modeled on computers.

6. What is a model?

7. Why might scientists use computer models in research instead of conducting an experiment on the real system they would like to study?

MAIN IDEA: The tools of molecular genetics give rise to new biological studies.

8. What is a gene?

9. How are computers used in genomics?

10. How does a gene differ from a genome?

Vocabulary Check

11. The term genomics is related to the term genome. How does the definition of genome give you a clue about what genomics means?

12. The term molecular genetics is made up of two words: molecular and genetics. What are the meanings of these two words, and how can these words help you to remember what molecular genetics is?