### 4.1 Studying Ecology

#### Key Concepts
- Ecologists study life at many levels, from individual organisms to the entire biosphere.
- Ecosystems include both biotic and abiotic factors.
- Organisms depend on resources provided by their habitat for survival.

#### Vocabulary Preview

*Define each vocabulary term in your own words. Then, write yourself a quick note on how you will remember each. One term has been done for you.*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>How I Remember</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology</td>
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<tr>
<td>Species</td>
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<tr>
<td>Population</td>
<td></td>
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<tr>
<td>Community</td>
<td></td>
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<tr>
<td>Ecosystem</td>
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<tr>
<td>Biosphere</td>
<td>All parts of planet Earth that host life, with all of its organisms and</td>
<td>I think of <em>bio</em>, which means “life” and <em>sphere</em>, which is a round object,</td>
</tr>
<tr>
<td></td>
<td>environments</td>
<td>such as Earth.</td>
</tr>
<tr>
<td>Biotic factor</td>
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</table>
Levels of Ecological Organization

For Questions 1 and 2, circle the letter of the correct answer.

1. The most basic level of ecological organization is a(n)
   A. biosphere.
   B. individual.
   C. ecosystem.
   D. population.

2. The study of living and nonliving components of a system can best be described as a(n)
   A. abiotic factor.
   B. level hierarchy.
   C. ecosystem ecology.
   D. organism interaction.

3. Describe how a species is commonly defined. Explain why the common definition for species may be problematic for some organisms, such as bacteria.

4. What is community ecology? Give examples.
Biotic and Abiotic Factors

5. **Organize Information** Fill in the T-chart with examples of abiotic and biotic factors in an ecosystem.

<table>
<thead>
<tr>
<th>Abiotic Factors</th>
<th>Biotic Factors</th>
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6. Is a fallen, rotting tree considered an abiotic or biotic factor? Explain.

Answer the questions to test your knowledge of lesson concepts. You can check your work using the answers on the bottom of the page.

7. Explain why organization is important to the study of ecology.

8. Why are dead or decaying organisms still considered important parts of an ecosystem?

9. What makes up an organism’s habitat?

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In our ecosystem, including both abiotic and biotic elements, habitat and organism behavior are crucial. Organisms interact with each other and their environment, forming complex relationships.

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