Section Review

Objectives

- Identify some areas of research affected by chemistry and describe examples of research in chemistry
- Distinguish between macroscopic and microscopic views

Vocabulary

- macroscopic
- microscopic
- biotechnology
- pollutant

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

1. Chemists design materials to fit __________ needs. Objects that can be seen only under magnification are part of the __________ world.

2. __________

3. Chemistry is important in the production and conservation of __________. One of the easiest ways to __________ energy is through the use of insulation. New kinds of __________ for the storage of energy are also being developed.

4. __________

5. __________

6. __________

7. Chemistry plays a role in efforts to increase the __________ of farmland and to protect __________ from insect pests. The trend is toward chemicals that treat __________ problems.

8. __________

9. __________

10. Astronomy and __________ exploration also benefit from chemistry. For example, a robotic vehicle delivered to the surface of Mars can determine the __________ of Mars rocks.

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

9. Insulin can be produced when genes from bacteria are inserted into humans.

10. World energy demand is decreasing.
11. Some human genes have been inserted into bacteria.

12. Low levels of lead in the blood can permanently damage the nervous system of a growing child.

**Part C Matching**

*Match each description in Column B to the correct term in Column A.*

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>macroscopic</td>
<td>a. material found in air, water, or soil that is harmful to humans or other organisms</td>
</tr>
<tr>
<td>pollutant</td>
<td>b. describes objects that can be seen only under magnification</td>
</tr>
<tr>
<td>biotechnology</td>
<td>c. applies science to the production of biological products or processes</td>
</tr>
<tr>
<td>microscopic</td>
<td>d. describes objects that are large enough to see with the unaided eye</td>
</tr>
<tr>
<td>fossil fuels</td>
<td>e. determined the sequence of genes in human DNA</td>
</tr>
<tr>
<td>Human Genome Project</td>
<td>f. materials formed from the remains of ancient plants and animals</td>
</tr>
</tbody>
</table>

**Part D Questions and Problems**

*Answer the following questions in the space provided.*

19. Describe two ways biotechnology can help treat diseases.

20. Name three factors that decrease crop productivity.

21. Explain how scientists know that water once existed on the surface on Mars.