Chapter 18  The Electromagnetic Spectrum and Light

Section 18.3 Behavior of Light (pages 546-549)
This section discusses the behavior of light when it strikes different types of materials.

Reading Strategy (page 546)
Monitoring Your Understanding As you read, complete the flowchart to show how different materials affect light. For more information on this Reading Strategy, see the Reading and Study Skills in the Skills and Reference Handbook at the end of your textbook.

Light and Materials

1. Is the following sentence true or false? Without light, nothing is visible. __________________

Match each term to its definition.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. transparent</td>
<td>a. Material that absorbs or reflects all of the light that strikes it</td>
</tr>
<tr>
<td>3. opaque</td>
<td>b. Material that transmits light</td>
</tr>
<tr>
<td>4. translucent</td>
<td>c. Material that scatters light</td>
</tr>
</tbody>
</table>

Interactions of Light (pages 547-549)
5. Is the following sentence true or false? Just as light can affect matter, matter can affect light. __________________

6. When light strikes a new medium, it can be ________________, ________________, or ________________.
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7. When light is transmitted, it can be refracted, polarized, or _____________________.

8. A copy of an object formed by reflected or refracted light waves is known as a(n) _____________________.

9. When parallel light waves strike an uneven surface and reflect off it in the same direction, ________________ reflection occurs.

10. When parallel light waves strike a rough, uneven surface and reflect in many different directions, ________________ reflection occurs.

11. Light bends, or ________________, when it passes at an angle from one type of medium into another.

12. Explain why a mirage occurs. ________________________________________________

_____________________________________________________________________________

13. Is the following sentence true or false? Light with waves that vibrate in only one plane is polarized light. ______________

14. Refer to the drawing and complete the table on polarizing filters.

<table>
<thead>
<tr>
<th>Polarizing Filters</th>
<th>Direction of Light Vibration</th>
<th>Filter Type</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horizontal wave</td>
<td>Vertically polarizing filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vertical polarizing filter</td>
<td>Light passes through.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Horizontal polarizing filter</td>
<td>Light passes through.</td>
<td></td>
</tr>
</tbody>
</table>

15. How do sunglasses block glare? ________________________________________________

_____________________________________________________________________________

16. The effect when light is redirected as it passes through a medium is called ________________.

17. Explain why the sun looks red at sunset and sunrise. ____________________________

_____________________________________________________________________________