Section 21.1 Factors That Affect Climate

This section explains how latitude, elevation, topography, water, winds, and vegetation affect climate.

Reading Strategy

Summarizing Information  As you read, summarize the effect(s) each factor has on climate. 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.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect(s) on Climate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Latitude</td>
<td>a.</td>
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<tr>
<td>2. Elevation</td>
<td>b.</td>
</tr>
<tr>
<td>3. Topography</td>
<td>c.</td>
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<tr>
<td>4. Water bodies</td>
<td>d.</td>
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<tr>
<td>5. Global wind</td>
<td>e.</td>
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<tr>
<td>6. Vegetation</td>
<td>f.</td>
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</tbody>
</table>

Factors That Affect Climate

1. ☐ Circle the letter of the answer that correctly completes the following sentence. As latitude increases, the intensity of solar energy
   a. decreases.  b. increases.  c. stays the same.  d. is unrelated.

2. Temperate zones have ___________ summers and ___________ winters because of the angle of the sun’s rays and the length of daylight in the summer and winter.

3. Why do the polar zones have cold temperatures year-round?

   ____________________________________________________________

4. Is the following sentence true or false? The polar zones are located between 66.5° north and south latitudes and the poles.

   ____________________________________________________________

   a. polar zone  b. temperate zone
   c. tropics  d. equator
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6. What effect does elevation have on precipitation? ____________________________

7. Describe why a rain shadow occurs. ________________________________________

8. ☐ Is the following sentence true or false? The higher the elevation is, the colder the climate. ________________

9. Circle the letter of the angle at which the sun’s rays strike the surface of Earth in the tropics.
   a. almost a 45° angle
   b. almost a right angle
   c. less than a 45° angle
   d. more than a right angle

10. The figure below shows the rain shadow effect. Identify the labeled items on the lines provided.

   a. ________________
   b. ________________
   c. ________________
   d. ________________

Match each sentence with the term that completes it.

   Sentence                                      Term
   ____ 11. In the temperate zones, the sun’s rays strike the Earth at a _________ angle than near the equator.
             a. global winds
             b. larger
             c. precipitation
             d. smaller
   ____ 12. When the sun’s rays strike Earth at an angle less than 90°, the energy is spread out over a _________ area.
             a. global winds
             b. larger
             c. precipitation
             d. smaller
   ____ 13. ☐ ________ distribute(s) heat and moisture around Earth.
             a. global winds
             b. larger
             c. precipitation
             d. smaller
   ____ 14. ☐ Plants influence ________ through transpiration, which releases water vapor from their leaves into the air.