Section 6.3 Water Beneath the Surface

This section discusses groundwater, including the environmental threats posed to it and landforms associated with it.

Reading Strategy

Comparing and Contrasting  Before you read the section, rewrite the green topic headings as how, why, and what questions. As you read, write an answer to each question. 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>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does water move underground?</td>
<td>by twisting and turning through interconnected small openings</td>
</tr>
<tr>
<td>How does a spring form?</td>
<td>when the water table intersects the ground surface</td>
</tr>
<tr>
<td>What is a well?</td>
<td>a hole bored into the zone of saturation</td>
</tr>
<tr>
<td>What are some environmental problems associated with groundwater?</td>
<td>overuse and contamination</td>
</tr>
<tr>
<td>What kind of terrain do Karst areas have?</td>
<td>irregular terrain with many sinkholes</td>
</tr>
</tbody>
</table>

Distribution and Movement of Water Underground

1. Select the appropriate letter in the figure that identifies each of the following groundwater features.

   - D zone of saturation
   - B aquitard
   - A spring
   - C water table
   - E zone of aeration

2. Is the following sentence true or false? Groundwater moves faster through sediment with large pore spaces than through sediment with small pore spaces.  

   true
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Springs
3. Circle the letter of the following that forms whenever the ground surface and water table intersect.
   a. aquifer  b. spring  c. well  d. aquitard
4. A type of spring called a(n) **geyser** is a column of water that shoots up intermittently with great force.

Wells
5. Circle the letter of the location a well must be drilled to provide a continuous water supply.
   a. in the zone of aeration  b. far below the water table  c. above the zone of saturation  d. far above the water table
6. What two conditions must exist for an artesian well to form? **Water must be in an aquifer that is tilted so that one end is exposed at the surface. There must be aquitards both above and below the aquifer to stop water from escaping.**

Environmental Problems Associated with Groundwater
7. What are two things that threaten groundwater supplies?
   overuse and contamination

Caverns

Match each description with its groundwater feature.

<table>
<thead>
<tr>
<th>Description</th>
<th>Groundwater Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>8. dripstone feature that forms on a cavern ceiling</td>
</tr>
<tr>
<td>b</td>
<td>9. type of limestone deposited in caverns by dripping water</td>
</tr>
<tr>
<td>e</td>
<td>10. natural process that forms caverns</td>
</tr>
<tr>
<td>a</td>
<td>11. naturally formed underground chamber</td>
</tr>
<tr>
<td>d</td>
<td>12. dripstone feature that forms on a cavern floor</td>
</tr>
</tbody>
</table>

Karst Topography
13. Typical of karst areas are depressions called **sinkholes**.
14. Is the following sentence true or false? Areas with karst topography typically have irregular terrain. **true**
Name ___________________________ Class ___________________ Date _____________

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WordWise

Use the clues below to identify vocabulary terms from Chapter 6. Write the terms, putting one letter in each blank. Use the circled letters to find the hidden word.

Clues
1. how plants release water into the atmosphere
2. a stream’s slope
3. the movement of surface water into rock or soil through cracks and pore spaces
4. a sediment’s ability to release a fluid
5. a permeable rock layer that transmits groundwater freely
6. a triangular shaped sediment accumulation
7. the maximum load a stream can carry
8. the water within the zone of saturation
9. the percentage of a rock that is occupied by pore spaces

Vocabulary Terms
1. t r a n s p i r a t i o n
2. g r a d i e n t
3. i n f i l t r a t i o n
4. p e r m e a b i l i t y
5. a q u i f e r
6. d e l t a
7. c a p a c i t y
8. g r o u n d w a t e r
9. p o r o s i t y

Hidden Word: t r i b u t a r y

Definition: a stream that empties into another stream