Answers

1. Rain and other precipitation.

2. Where rocks have a large number of factors and a significantly large collecting area. The best place is near a stream or where several streams come together.

3. No. The water table follows the general contour of the earth's surface. Under hills the elevation of the water table is higher than beneath the valleys.

4. (C) Porous rock

5. (C) caves and caverns

6. (A) calcium carbonate

7. (D) limestone

The
Physical Geography
Series

Underground Water

KG1158

TEACHER'S GUIDE

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Glossary

Aquifer - A rock unit from which water may be recovered through a well.

Porous rock - Rock through which water moves easily such as sandstone.

Non-porous rock - Rock through which water does not easily move underground (clays and shales).

Water table - The surface below, which rocks, are saturated with water.

Artesian well - This occurs when an aquifer is bounded at the top and bottom by non-porous beds such as clay or shale. Water under pressure causes water to be ejected from the aquifer and rise into the well.

Cone of depression - When a well taps the water table it produces a cone-shaped water-free area around the well.

Permeable rock - Rock where water moves through freely.

Suggested Teaching Activities

1. Bring in a sponge and a rubber stopper (as seen in the video). Show how water can move freely through the sponge because the holes are interconnected. This is similar to porous rock. But water can only move through a small hole in the rubber stopper. Therefore you must find the exact channel in materials like limestone or shale.

2. Discuss where people get their drinking water. Some cities rely on fresh water sources such as lakes and rivers. But if these are not available farms or small towns rely on ground water as their source.

3. Discuss how placing toxic materials into the ground can contaminate or pollute good ground water. Disposing of old oil, household chemicals, lawn pesticides and fertilizers can seep below the ground and ruin good water.

4. Where does the drinking water come from in your community?

5. Bring in a slab of limestone, granite and sandstone. Using an eyedropper keep putting water on the top of the rock and see if it is porous or non- porous. The porous rock will absorb the water like a sponge. The non-porous rock will not absorb any of the water and it will flow off.

6. Discuss bottled mineral waters. Why are they so popular today? Why do they taste better than distilled water?

7. Using a piece of limestone, pour vinegar right out of the bottle over the limestone. Describe what takes place. The stone should fizz, freeing carbon dioxide and partially dissolve. This is how caves and caverns are formed on a larger scale.

8. Take sand and put it into a jar with water. Tighten the lid and shake. Observe what happens. Will the sand harden into a rock? What is necessary to make sand stick together?

Quiz

1. Where does most well water have its origin?

2. Where is the best location for water well?

3. Is the water table flat?

4. Water moves underground in:
   a) Underground Rivers
   b) Underground Reservoirs
   c) Through Porous Rock
   d) Mysteriously

5. As water moves through buried limestone it can dissolve the rock and produce:
   a) Wells
   b) Cones of Depression
   d) Caves or Caverns
   c) Water Tables

6. Limestone is composed of:
   a) Calcium Carbonate
   b) Calcium Bicarbonate
   c) Silicon Dioxide
   d) Tiny Sand Grains

7. This type of rock can be dissolved by slightly “acidic” water:
   a) Granite
   b) Sandstone
   c) Siltstone
   d) Limestone