Aquifer in a Cup

Objective
Groundwater is water that is found underground in the spaces and cracks between soil, sand and gravel. Often hidden from view, in this activity you will "see" what groundwater looks like and learn some basic groundwater vocabulary.

Materials Needed

- 2 clear cups
- Sand
- Gravel or aquarium rock
- Pitcher of water

Procedure
1. Fill both cups with layers of sand and gravel to about 3/4 from the top of each cup. Remember that in nature, aquifers consist of layers of sand, gravel and rock.

2. In one of the cups, pour water slowly into it. Watch how the water fills the spaces between the particles of sand and gravel. Does the water appear to move faster through the sand or faster through the gravel? Why?

3. Now continue to fill this cup with water to the top (above the top of the sand and gravel). Water that is located above ground, like rivers and lakes, is called surface water. Water below the ground's surface is called groundwater.

4. In the second cup, slowly pour water into the cup until the water line is about one inch below the top of the sand/gravel. Look closely at this line created by the water. This line is called the water table. Water below the water table is called the saturation zone.

5. Now pretend that your pitcher of water is a large rain cloud and pour some more water into your second aquifer until the water table is about one half an inch below the surface of the gravel. Your groundwater supply has just been recharged. This is what happens when it rains or snows and water infiltrates (or sinks) into the ground.

Optional Extension
Use colored water or powdered drink mix to represent a source of groundwater contamination. Sprinkle or pour the contamination on the top a cup filled with gravel and water. Sprinkle water (rain) on top of the gravel. Observe and discuss what happens.

Conclusion
We have learned that groundwater is water that is found underground in the cracks and spaces in soil, sand and gravel. We have learned that groundwater is stored in--and moves through--the layers of sand and gravel. This geologic formation of sand and gravel which stores groundwater is called an aquifer. Aquifers get more water when they are recharged by rain and snow.

Activity Source
The Groundwater Gazette, published by The Groundwater Foundation