

Title: Aquifer Activity

Name _____
Period _____

Introduction: An important reservoir for water, especially in the Western United States, is underground in an **aquifer**. Water that falls as rain or snow sinks into the soil and fills the spaces between rock particles, the **pore space**. At some point, the water hits a barrier that has no pore space and it stops moving down. If you were digging a hole in the ground and hit water, you have found the top surface of the underground water. It is referred to as the **water table**. In this activity, you will model the movement of water underground and pollution affects underground water. Remember that water is an excellent solvent (it can dissolve many other substances).

Materials: Sand, 2 beakers, clear plastic tube, 3 plastic pipets, food coloring, graduated cylinder, spoon, marker, spray bottle

Procedure:

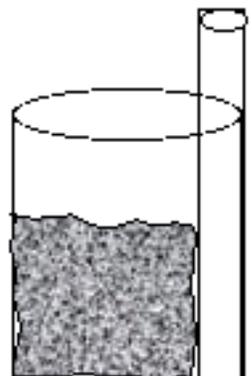
1. Place the plastic tube upright in the beaker next to the edge. Fill the beaker nearly full of dry sand.
2. Fill the graduate with 60 ml of water.
3. Pour the water down the side of the beaker and watch as it fills the pore space in the sand. Use a marker to show where the water level is in the well.
4. One student should use the pipet to draw water from the “well”(the plastic tube) and someone else should add water to the surface of the sand with another pipet or spray bottle. Place the water you take out into the graduated cylinder. Your teacher will tell you how long you can “rain” on the surface for every month of the year..
5. As you go through the months of the year, notice which months have drops in the well water and which have increasing amounts.
6. Add a few drops of food coloring (pollution) to the surface of the sand as far from the well as you can get. Add water to the surface as you remove water from the well. Time how long it takes to see a change. Write your observations as you watch.
7. Continue adding water to the surface and time how long it takes to clean the water as you pump the well.

Prediction: When will water level in the well go down?

Data: Draw the water table and well at the beginning on this diagram:

What months does the water level go down?

What months does the water level go up?



Analysis:

1. How can you tell where the water table is?
2. What do you notice about the level of the well and the water table?
3. Why must the well be deeper than the water table?
4. What would happen to a basement built below the water table?
5. How does pollution of the surface of the land affect a well?
6. What property of water allows it to become polluted?
7. Why is clean water in wells important to the people in Utah?

Conclusion: 2 things you learned: