



Where's the Deeper Flow Going to Go?

Student Name: _____

Class: _____

Object: Predict and observe the direction and path of groundwater flow from deeper locations on the simulator.

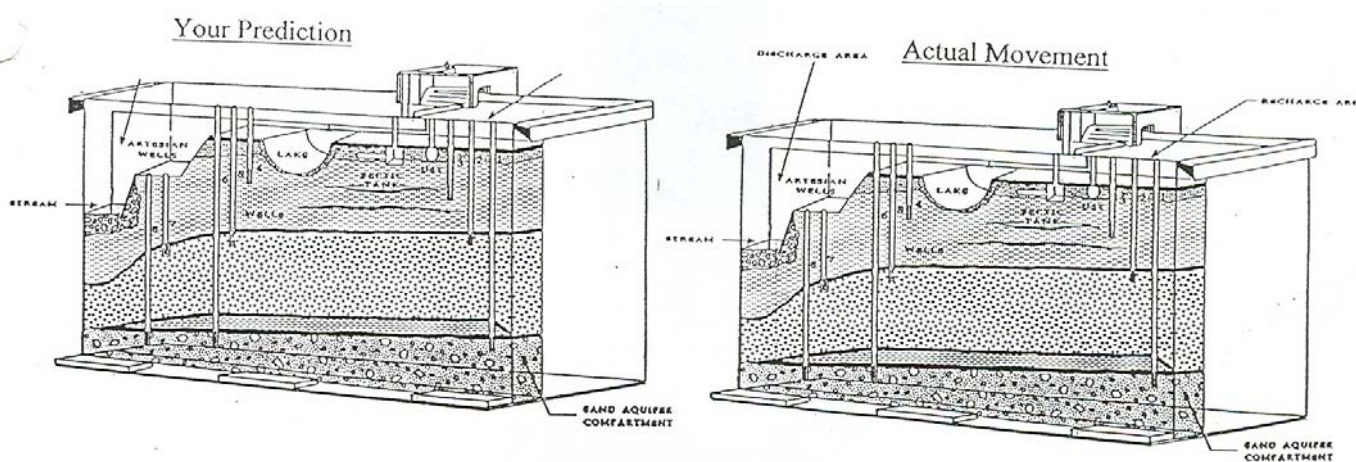
Time Needed: 10-15 minutes

Simulator Conditions: Slide the simulator aquarium pump so that the full amount of flow is being delivered to the recharge area (slide pump to the right). Make sure that the aquifer compartment drain valve at the bottom of the simulator's back water reservoir is closed. Make sure the stream drain valve is open. Make sure the lake drain valve is closed.

Materials needed: Skinny eyedropper, washing squirt bottle, 1 color of food coloring (dye)

Procedure

1. On the below left illustration, predict where you think groundwater flows starting at the bottom of Well #1. Draw arrows to show the path of the groundwater flow and ultimately where it ends up.



2. Carefully extract a small amount of red dye using the skinny eyedropper, stick the eyedropper down into Well #1, release the red dye into the well. Take the washing squirt bottle, slowly squirt and force the dye out of the bottom of the well so that a "nickel sized" to "quarter sized" amount of dye is in the sand.
3. Watch and record the path of the groundwater flow (your dye colors) on the above-right illustration. While you wait, do questions A and B that follow.

Questions

- A. What characteristics of the soil are allowing the groundwater to move through it?
- B. Is the groundwater moving faster here compared to when you injected dye into well #2?
- C. Compare your predictions to what you actually observed. Did the groundwater end up anywhere that you did not expect? If so, where?
- D. What type of aquifer was this groundwater moving through? What is the definition for that type of aquifer?
- E. Was the groundwater traveling through this aquifer under high or low pressure? Why?
- F. What caused the groundwater to defy gravity and go up into well #8?

Other OPTIONAL explorations:

- Wait to do the other Mini-Exercises.