

Infiltration: Groundwater Flow Model II

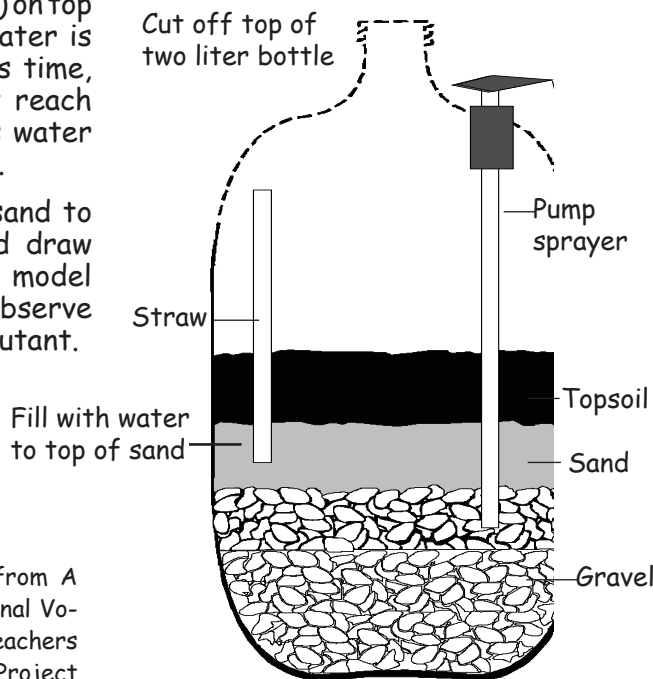
Objectives

Students will:

- demonstrate the movement of pollution through the ground and understand the process of groundwater contamination.

Procedure

- Add water slowly to saturate the sand and rocks. Observe the water table and discuss how the addition of precipitation affects the level of the water table. The sprayer represents a well which will be used to lower the water table.
- Use the pump sprayer to withdraw water from the flow model. Observe the cone of depression followed by water gradually filling in the area.
- Add food coloring to a small amount of water. Fill the syringe with the colored water. Inject this "pollutant" into the top layer of sand.
- Use the pump sprayer to withdraw water from the model and observe the movement of the pollutant.
- Draw water level below top of sand. Spill pollutant (food coloring) on top of sand. When water is withdrawn at this time, pollutant will not reach well water unless water level is over sand.
- Spray water on sand to simulate rain and draw water from the model with the pump. Observe action of the pollutant.



No. 1 Groundwater contamination demonstration

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Materials

- 2 liter clear plastic container
- Pump sprayer from a bottle of all-purpose cleaner
- Small piece of nylon fabric
- Masking tape or rubber band
- Transparent straws
- Small rocks or gravel
- Clean sand and topsoil
- Red food coloring
- Spray container with water
- Disposable syringe

Directions for Making Flow Model:

1. Secure a piece of nylon over the end of the pump sprayer with masking tape or a rubber band. The nylon will act as a pump screen.
2. Cut off the top of the plastic 2 liter container. Fill the 2 liter container approximately one-third full with small rocks. See illustration No. 1.
3. Insert the pump sprayer into the rocks and hold vertically while filling the container with a layer of sand and a layer of topsoil to within two inches of the top.
4. Insert a straw into the sand so it is near the outside of the container.

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