

Materials:

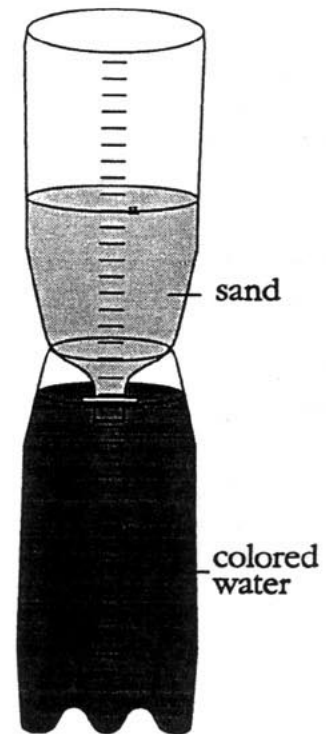
Sand	Water	Model Bottle
Collection Bottle	Water-based Marker Pen	Food Coloring

Background:

Whenever water reaches the earth's surface, some of it goes into the ground where it flows through porous rocks. **Groundwater** is divided into layers called the **saturated zone** (full of water), the **water table** (the top of the **saturated zone**), and the **unsaturated zone** (everything above the **water table**). As water flows through the ground some water sticks to the surface of the rocks and soil in the **unsaturated zone**, but the pores in the rock or soil in this zone are filled with air. The water continues to flow down through the water table to the **saturated zone** where all the pores in the rock or soil are filled with water. In this activity we will use **capillary** action to lift water into our sand **aquifer**.

Procedure:

1. Put the screen in the model bottle.
2. Fill your model bottle with sand to the 1,000 milliliter mark.
3. Slowly pour approximately 1600 milliliters of water into the collection bottle.
4. Add food coloring to the water (about 6 drops of a dark color).
5. Place the model bottle in the collection bottle. If the opening of the model bottle is not in the water, remove it, add about 200 milliliters more water to the collection bottle, and re-place the model bottle in the collection bottle.
6. Observe.
7. With your water-based marker pen, based on your observations and the descriptions above, label the bottle with the following:
Water table
Saturation zone
Unsaturated zone
8. Draw the parts of an **aquifer** on a piece of paper.
9. Approximately how much water was drawn up into the model bottle?
 (collection bottle start - collection bottle finish = **capillary** action volume)



10. Define **capillarity**.

11. Clean up.