



Aquifer in a Cup

Make a model of the Memphis Sand Aquifer

Materials

- Clear glass or plastic cup
- Modeling clay - *enough for a thin layer to cover the width of the cup*
- Sand - *enough to fill 1/4 inch of the cup*
- Small pebbles
- Red food coloring
- Clean water
- Ruler

Procedure

1. Add 1/4 inch of sand to the bottom of your cup.
2. Slowly pour water onto the sand, enough that the sand is saturated but there is no standing water.
3. Flatten your modeling clay into a pancake and cover 2/3 of the sand. Press the clay against the side of your cup to seal off one side. Pour a small amount of water onto the clay so you can observe how clay does not absorb water like sand.
4. Add the pebbles. Cover the clay completely and form a downward slope with the pebbles. (Some pebbles have dust or dirt on them so it may be helpful to rinse them before adding to your cup.)
5. Add clean water until it reaches the top of your pebble hill.
6. Squeeze a few drops of food coloring onto the top of your pebble hill, near the side of the cup.
7. Observe how the food coloring makes its way to the water in the bottom of the cup.

Why?

The water in the sand at the bottom of the cup represents the aquifer, where we get our drinking water. The water at the top of the cup represents surface water. The red dye is like pollution that makes its way into groundwater from dumping and rain runoff. The aquifer model shows how our drinking water can become contaminated.

For more information about water quality, check out the Buckman Water Science Trail at Litcherman Nature Center.

This activity was adapted from
www.epa.gov/safewater.