Soil Percolation Anticipatory Set Preparation

Supplies:
3 – 2 liter pop bottles
3 – dry soil samples about 2 cups of each: Clay, Silty loam, Sand
3 – 2 cups of water with colored equally with easily visible food coloring.
Nylon squares of 3” by 3”
Rubber Bands
Food Coloring

Before Class Preparation:

1. Cut each 2 liter bottle about 2/3 of the way up the bottle.
2. Take the other 1/3 and use a rubber band to securely fasten the nylon to the bottle top. This will hold the soil sample in place – but allow water to flow through easily.
3. Place the 1/3 piece of bottle – bottle top down into the other 2/3 cut piece.
4. Fill the 1/3 cut piece about 2/3 of the way with soil and lightly press the soil down. Label each bottle with the soil type.
5. Repeat this process for the other two samples.
6. Prepare about 6 cups of brightly colored water. Divide into 3 equal containers. The color represents potential contaminants in the water.

Beginning of class:
Students should make a hypothesis prior to the instructor adding the colored solution to each container of soil. Ask the students, what do you think will happen in each container when contaminated water is added, and provide a short explanation of your hypothesis?

Add solution to each sample.

Check-in with the samples throughout the lesson. As the water percolates through the soil it will be filtered. The clay will take the longest for water to percolate through and the water should be fairly clear with little to no color. The sandy soil sample will have water percolate through the fastest and will retain most of the color. The silty loam soil will be about in the middle with percolation and color of water.