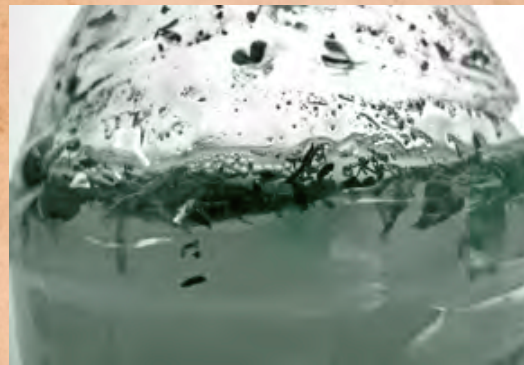


# Preparation

Try to obtain coarse sand such as that used for home improvement projects. Clean, fine sand may not allow water to pass as readily as most sands found in soils.

**SOIL SEPARATION.** In Step 3, students are asked to observe three different soil types (potting soil, local soil and sand) that have been mixed with water and allowed to settle. For this demonstration, clear plastic, 12-oz bottles work well. Fill each bottle about two-thirds full of soil. Place potting soil, local soil and sand in separate bottles. (A funnel or a paper cone may make it easier to get the soil in the bottles). Add water to near the top of each bottle. Place caps on the bottles, shake the contents well, and place the bottles in a location where they will not be disturbed. Prepare at least one day before making observations.



a. Soil separation after the surface of the water

b. Organic material floating on the surface of the water

When teams conduct the investigations described beginning in Step 10, prepare the following materials (exact numbers of sets will depend on the number of students and teams in your class). Identify a place in the classroom where students can pick up their materials needed for their assigned investigation.

# Preparation



## INVESTIGATION 1:

### **LOOKING AT SOIL SAMPLES**

Make available enough potting soil (labeled Soil A) and local soil (labeled Soil B) to be contained in the center circles on Master 2.1a and b, *Looking at Soil Samples* (about 1 teaspoon for each group of 4 students). Also have hand lenses available.

# Preparation

## INVESTIGATION 2:

### SOIL AND AIR SPACE

Each team will need three clear plastic cups containing soil samples. Use cups that hold about 1 cup of liquid. Label the cups 1, 2 and 3. Add soil to each cup as follows.

**CUP 1:** 1/2 cup of potting soil

**CUP 2:** 1/2 cup of local soil

**CUP 3:** 1/2 cup of sand

Each team will also need 3 cups that each contain 1/2 cup of water. Also have a ruler available for each team.



# Preparation



## OPTIONAL ACTIVITY:

### DOES SOIL MATTER?

The cups for this activity and the planting of seeds will be similar to the procedure in Lesson 1. You can prepare cups and fill them with potting soil, local soil, and sand in advance to save class time before students plant the seeds. Another option is for you to prepare and plant the seeds for students to observe. If you choose this option, you may want to prepare 2–3 cups with each type of soil to allow teams of students to observe a set of cups. This would also allow for comparisons among different sets of cups (to demonstrate that the results of a single cup are not simply a fluke).