

# Instructional Materials

## Session One: Exploring Soil

### An Original Grade Five Lesson by Timothy Mackey

#### **Educational Aim**

To provide students with the opportunity to construct understanding of the components of soil, similarities and differences among soils, and soil's place in Earth structure.

#### **Materials**

Soil core sampler (available at County Offices or in Science Catalogs such as Ward's)  
Butcher paper  
Tweezers  
Hand lenses  
Paper plates for soil samples  
Core samples of soil collected from different locations, wrapped in aluminum foil  
pH test kit  
Litmus paper  
Pencils and science journals

#### **Procedure**

- A. Begin with a whole group discussion to elicit the students' preconceptions about soil. Prompt the discussion with the following questions: What is soil? Are all soils the same? If not, how do they vary?
- B. Bring the class outside to collect a core sample of soil from the school premises. Have the students describe what they see in the sample. Ask the following questions to expose student ideas: How far down does soil go? What do you think is underneath the soil? What do you expect to find or see when you investigate a particular soil sample?
- C. Return to the classroom, and organize students into groups of four. Present the "mystery" soil samples to the class and allow each group to uncover them. Instruct the students to begin their investigation. Remind the students to observe the core sample as a whole before breaking it apart. Ask them to observe each of the groups' samples, make comparisons, and speculate why there might be differences among the different soil samples.
- D. Facilitate the groups in their inquiry as they examine and test their samples. Allow the group to determine their own methods of testing. Instruct them to record their soil data, hypotheses and conclusions in their science journals. As each group completes their investigation, ask them to use what they discovered to hypothesize about where the sample originated.
- E. When groups are ready, ask each group to share their findings and conclusions with the whole group. Revisit the original ideas the students had about soil and discuss what

each group learned about their soil sample. Reveal the location of each soil sample to the groups. Have them think about what information they had about their sample that provided clues to its source location. Talk about what new questions they now have about soil.