

Lesson #5

# “TOTALLY TUBULAR” SOIL

## STRATIFICATION



**Overview:** - In this activity, students observe and measure settling rates of soil particles in water. Soil of different sizes and particle mass and/or density settles through a column of water at different rates. Researchers use settling rates to distinguish soil particle sizes in the finer fractions – very fine sand, silt and clay..

**Objectives:** - Students will observe the settling process. Students will record stratification of different soils in water. Students will identify types of soils or give a description of each.

**Materials:**

1. 4ftX2in clear plastic tube with stoppers at both ends (available at plastic shops or building supply stores)
2. Samples of soils gathered from the Cove River site.
3. Buckets (5)
4. Water
5. Small trowel for soil

\*The soils for this experiment will be gathered from the Cove River property on the day of the field trip. This experiment is designed to be conducted on site, but can be done in the classroom alternatively

<b>Key Concepts:</b> Understanding the settling process making local connections
<b>Subjects:</b> Social Studies, biology, Ecology, Geography, Mathematics
<b>Duration:</b> 1class period(40 minutes)
<b>Setting:</b> In the field, outdoor natural landscape
<b>Season:</b> Spring, Summer, Fall
<b>Interdisciplinary Connections</b>
<b>Frameworks:</b> mathematics; graphing measuring and recording data

**Engage:**

While at the Cove River site, gather together for a class discussion. Ask students to comment about the soils they observed as well as the different types of characteristics noticed. Show the students 5 buckets of soil collected from different areas throughout the site. Discuss the reasons why we use soil from a variety of dig spots.

**Explore:**

1. Divide the students into groups of two. Each group will use the trowel to put different types of soil into the plastic tube until the tube is about 1/3 full.
2. Have the students record a hypothesis as to what will happen when water is added and mixed well.
3. Fill the tube with water and seal with a stopper.
4. Shake the tube until the water is dispersed.

*Environmental Education @ the Cove River Site, and other coastal Connecticut settings.*



*Produced by the Graduate Students in Environmental Education EVE 546 Spring 2009*



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***Explain:***

5. Groups should observe the settling process and record actual results in lab notebooks. Students should sketch their observations as well.

***Elaborate:***

6. Collect the tubes to the center of the group. Ask the students why the sediments settled in the order they did. Explain to the students that the densest particles will settle first, followed by the smaller particles. This demonstrates the sorting process in streams and eroded areas.
7. Does the sedimentation in the tube remind the students of any local geologic formations?
8. Walk to the river area (just past the front gate) to observe whether stratification is visible.

***Evaluate:***

All students should participate in field work. Lab notebooks are an excellent tool for evaluation.