# soil & sustainability (ms) Soil texture

Focus question	What is soil texture? How is it determined?
Vocabulary	Sand, silt, clay, gravel

# **Materials**

- 500 ml of soil (a flower bed will work-dig under the mulch layer)
- 100 ml graduated cylinder or clear, flat-bottomed jar with a lid
- Borax
- Parafilm (or plastic wrap)
- Ruler

# Procedure

#### Day 1: Collect soil and prepare soil columns

- 1. Follow teacher instructions to collect soil samples.
- 2. Lay soil out on a table top. Remove any mulch, roots, and debris from the soil.
- 3. Add 50 ml of soil and a pinch of Borax to a 100 ml graduated cylinder or jar.
- 4. Add water up to 100 ml in the cylinder or over half-full in the jar.
- 5. Cover the top of the cylinder with parafilm or cap the jar and shake vigorously to mix the water throughout the soil, then let sit overnight.
- Follow the directions on the soil texture flowchart (on the following page) to determine the soil texture of your sample by feel.

Record your soil texture by feel:

Soil texture from flow chart:





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## Day 2

- 1. Examine the graduated cylinder or jar you prepared on day 1.
- 2. Measure the height of each layer of soil sediment in the column. (The largest particles are sand and should be on the bottom; the middle sized particles are silt and should be in the middle; the smallest particles are clay and should be on the top.)
- 3. Add the three measures together, then divide each by the total to find the percentage. (The total may not equal 50, due to settling, floating humus or organic material that will not be included.)
- 4. Use the percentages to determine soil texture using the USDA soil texture triangle.

#### Data table

Sand	Silt	Clay	Total measurement
ml	ml	ml	ml
%	%	%	%

#### **Reflection questions**

- 1. How do the "soil by feel" and "soil by volume" conclusions compare?
- 2. What are some possible geologic events that could help to create this soil type?

### **Rubric for self-assessment**

Skill	Yes	No	Unsure
I was able to complete the texture by feel flow chart and determine the texture of my soil sample.			
I was able to determine the texture by volume, read the soil texture triangle, and compare it to the texture by feel.			
I researched the recent land use of the area to construct an explanation of why my soil sample had the texture it does.			

