

Name _____



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What's Your Soil Texture?

Purpose: To determine the texture of your soil.

Materials: Soil sample, plastic container with lid, water, Texture-by-Feel Guide, Soil Triangle, vis-à-vis marker, ruler, calculator

Procedure:

1. What are the three soil particles that determine soil texture?

1. _____
2. _____
3. _____

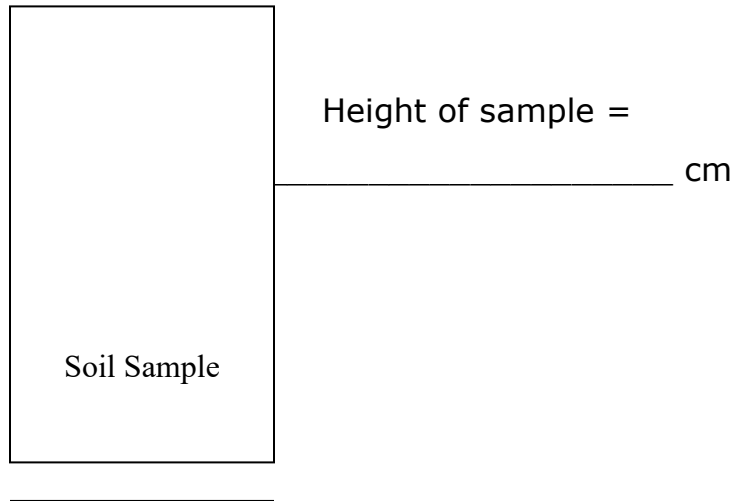
2. Use the "Texture by Feel Guide" to try to determine your soil type. Follow the steps of the flow chart. Make a hypothesis about what type of soil you have. Record your type of soil below.

3. Follow the steps below to mathematically determine what kind of soil you have.

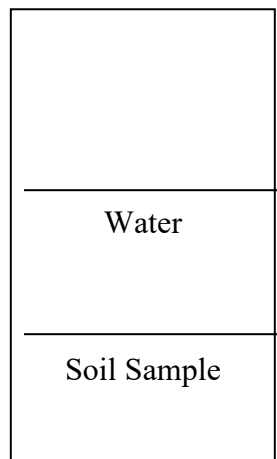
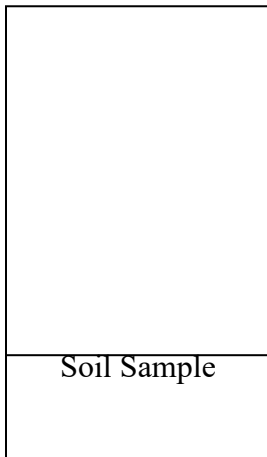
- a. Fill your container no more than half full of your soil sample.

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- b. Wet the soil to a mud consistency and tap the jar to settle the soil.
- c. With your ruler, measure the height of the soil sample in centimeters and record it below.



- 4. Raise your hand when you are ready to add more water. Pour in enough water to double the total volume of your sample.



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5. Now that you have your mixture of soil and water, seal the lid tightly.
6. Now shake the jar until all of the soil and water are mixed up.
7. Put the container on the shelf and let the soil settle. Do not touch the container or shake it while the soil is settling.

Using the Soil Triangle, determine the texture of the following soils with the given percentages:

a) 20% sand, 10% clay, & 70 % silt:

b) 60% sand, 10% clay & 30% silt:

c) 40% sand, 50% clay & 10% silt:

d) 10% sand, 0% clay, & 90% silt:

Answer the following questions about soil texture by using your Soil Triangle:

a) Can clay have sand in it?

b) Which has more sand, silt or loam?

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c) Which has more clay, silt loam or sandy clay?

d) Can silt have clay in it?

8. Check your soil sample to see if your soil has settled yet. Measure the height of each of the layers of your soil. Record your observations below.

Clay = _____ cm

Silt = _____ cm

Sand = _____ cm

9. Add the amounts of sand, silt and clay together.

Clay = _____ cm

Silt = _____ cm

+ Sand = _____ cm

Total = _____ cm

Is this total amount different from the amount of soil you measured in Step 3 (yes or no)? If yes, explain why this might happen.

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Now you will calculate the percentage of sand, silt, and clay in your soil sample. Remember that percentages describe a portion of the total amount.

Example: % of clay = $\frac{\text{depth of clay in cm}}{\text{depth of total sample in cm}} \times 100$

Show your work below:

$$\% \text{ of clay} = \frac{\text{_____ cm}}{\text{cm}} \times 100$$

% of clay =

$$\% \text{ of silt} = \frac{\text{_____ cm}}{\text{cm}} \times 100$$

% of silt =

$$\% \text{ of sand} = \frac{\text{_____ cm}}{\text{cm}} \times 100$$

% of sand =

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Now use the Soil Triangle. Use the percentages to figure out what kind of soil you have.

Conclusion:

My type of soil is

_____.

Was your hypothesis accurate, close, or far off from what you mathematically determined your sample to be?

Why do you think some people's Texture by Feel predictions might not have been accurate?