

Soil Separates Activity

Name:	Period:	Date:
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Part A: Soil Textural Class Names

1) What is sand? What are the characteristics of sandy soil (porosity, permeability, water retention, nutrient retention, etc.)?

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2) What are the possible physical dimensions for a soil particle classified as sand?

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3) What is silt? What are the characteristics of silty soil (porosity, permeability, water retention, nutrient retention, etc.)?

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4) What are the possible physical dimensions for a soil particle classified as silt?

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5) What is clay? What are the characteristics of clayey soil (porosity, permeability, water retention, nutrient retention, etc.)?

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6) What are the possible physical dimensions for a soil particle classified as clay?

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7) What is loam?

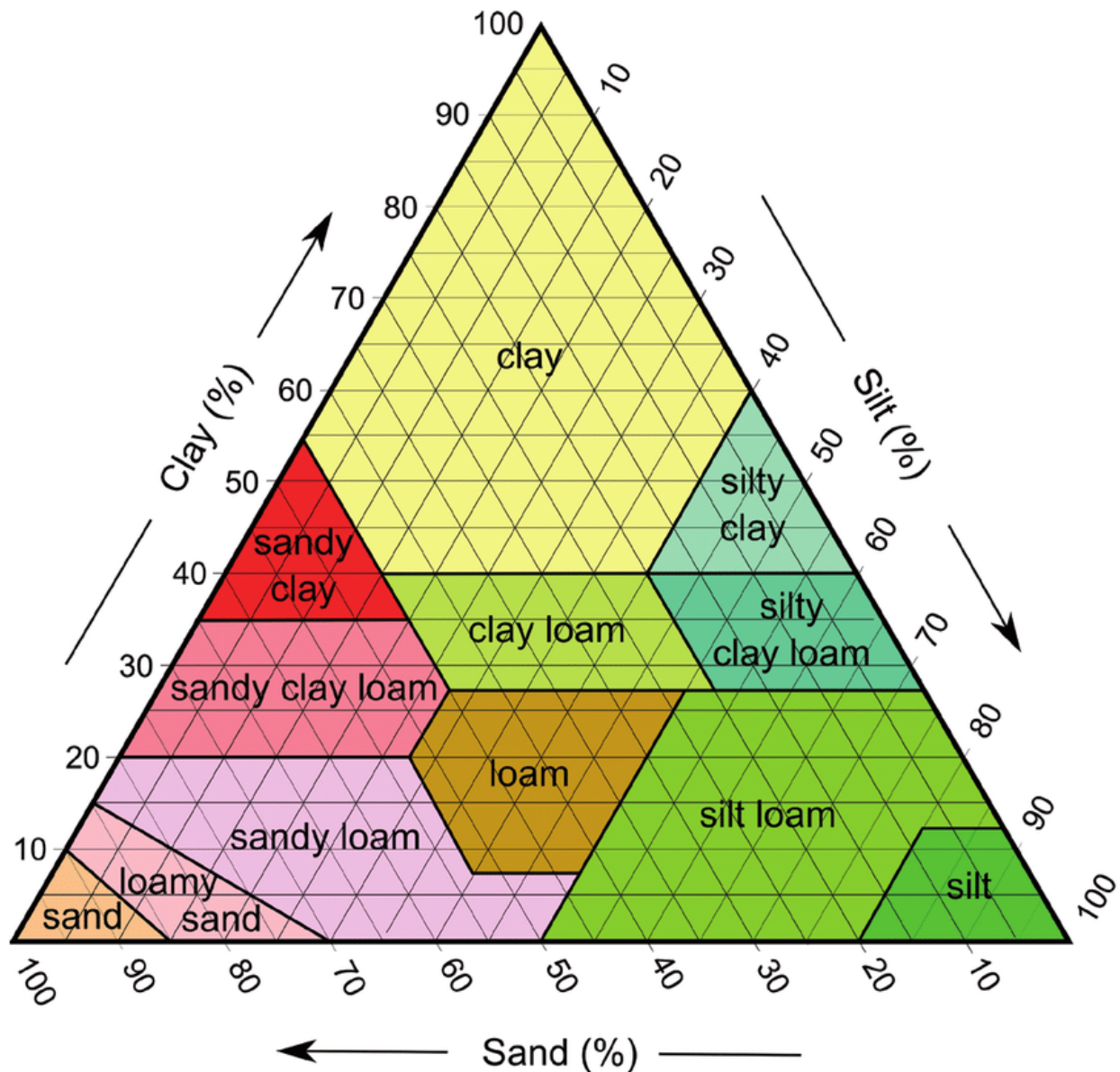
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Part B: Determining the Textural Class of a Soil (A soil textural triangle is included below)

Use the soil texture triangle to complete the following table. Use should enter values in all “pink” cells.

Sample	% sand	% silt	% clay	Texture Class
1	75	10	15	sandy loam
2	10	83	7	
3	48	24	28	
4	42		37	
5		52	21	
6		35	50	
7	64	30		
8	50		40	
9	36			clay loam
10			42	silty clay
11				loamy sand
12				silt loam
13				
14				

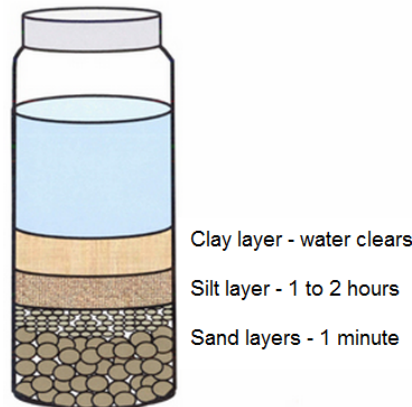
Soil Texture Triangle



Part C: Determining the Soil Texture Class for Your Soil Sample by Measurement

- 1) Conduct your analysis by using the following procedure:
 - a) Spread soil in/on a bin/tub/tray. Remove all rocks, trash, roots, etc.
 - b) Crush lumps and clods.
 - c) Finely pulverize the soil.
 - d) Obtain a graduated cylinder or tall, slender jar/bottle.
 - e) Fill the container $\frac{1}{4}$ - $\frac{1}{3}$ full of soil.
 - f) Add water until the container is $\frac{3}{4}$ full.
 - g) Add **non-foaming** dishwasher detergent
 - i) $\frac{1}{3}$ teaspoon of powdered detergent or
 - ii) a few drops of liquid detergent

- h) Close the container and shake for **5 minutes**. This shaking breaks apart the soil aggregates and separates the soil into individual mineral particles.
- i) Set the jar where it will not be disturbed. Soil particles will settle out according to size. Start a stopwatch....
- j) **After 1 minute**, measure/mark the depth of the sand. Record this measurement.
- k) **After 1 hour**, measure/mark the depth of the silt. Record this measurement.
- l) **When the water clears**, measure/mark the depth of the clay level. This may take a few days. Record this measurement.



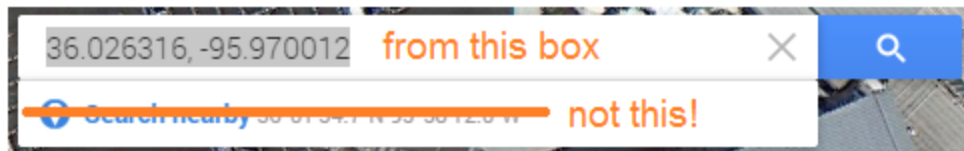
- 2) Appropriately present your measurements and percentages of sand, silt, and clay.

Insert your data/results here

Part D: Determining the Textural Class of Your Soil Sample

- 1) Use the texture triangle above to determine your soil texture class. What is your sample's soil textural class?

- 2) Use Google Maps to determine where the sample was collected. Express the latitude and longitude in **decimal format**. Hint: just cut and paste from the Google Maps search box.



Part E: Comparing Your Findings to the Natural Resource Conservation Service Soil Map For Your Area

- 1) Go to this [website](#) and follow along with the demonstration video in the JenksFERST activity to find the soil textural class name for the area where your soil sample was taken.
- 2) What did the Web Soil Survey list as the soil textural class for the A horizon? Did your sample match the listed soil textural class for the A horizon? If not, what do you think could have caused the difference?

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Part F: Optional

- Nova video ("[Making North America: Human](#)") that contains a section highlighting the importance of soil. Watch from 23:30-29:30 (or watch the entire video!).

Part G: Submit your worksheet using the instructions in Step 9

- Be sure to "share" your document with me before you submit it!
- (bryan.yockers@jenksps.org)