

Marine Biology Chapter 10: Soil Texture Lab

The way a soil “feels” is called the soil texture. Soil texture depends on the amount of each size particles in the soil. Sand, silt and clay are names that describe the size of individual particles in the soil.

Sand is the largest particle and it feels “gritty.”

Silt is medium-sized and feels soft, silky or “floury.”

Clay is the smallest sized particle and feels “sticky” and is hard to squeeze.

There are five samples of soil that you need to test through two different methods. The first method will use the attached key. Follow each step in order to determine what type of soil you have. Do this for each of the five samples and write it in the table below.

After you have completed the first test, the second test will involve looking at the graduated cylinders that you made yesterday. Remember that the sand will be on the bottom, followed by silt and clay should be the top layer. All three layers will be equal to 100%. Approximate the percentage of each type of particle. Then look at the triangle to determine the type of soil. Write the soil type for each sample in the table below.

Sample	Key Test	% clay	% silt	% sand	Triangle Test
1					
2					
3					
4					
5					

Step 1	<p>Place some soil in the palm of your hand and moisten it with water. Work the soil between your fingers until it is the same moisture throughout. Try to form a ball</p> <p>Soil forms a ball Go to Step 2</p> <p>Soil does NOT form a ballGo to Step 5</p>
Step 2	<p>Which set of characteristics does the soil have?</p> <p>A. Really sticky Hard to squeeze Stains your hands Has a shine when rubbed Form a long ribbon (5+cm) without breaking Call it clay Go to Step 3</p> <p>B. Somewhat sticky Somewhat hard to squeeze Forms a medium ribbon (2-5 cm) without breaking Call it clay loam Go to Step 3</p> <p>C. Soft Smooth Easy to squeeze At most slightly sticky Forms a short ribbon (less than 2 cm) without breaking Call it loam Go to Step 3</p> <p>D. Forms a ball but no ribbon.....Go to Step 4</p>
Step 3	<p>Wet a pinch of soil in your palm and rub it with a forefinger.</p> <p>Soil feels gritty Go to E</p> <p>Soil feels very smooth with no gritty feeling Go to F</p> <p>Soil feels only a little gritty Go to G</p> <p>E. Add the word sandy to the classification. Soil texture is complete</p> <p>F. Add the word slit or silty to the classification. Soil texture is complete</p> <p>G. Leave the original classification Soil texture is complete</p>
Step 4	<p>Which set of characteristics does the soil have?</p> <p>H. Very gritty Soil texture is loamy sand Soil texture is complete</p> <p>I. Very soft and smooth with no gritty feeling Soil texture is silt Soil texture is complete</p>
Step 5	<p>The soil forms no ball and falls apart in your hand. Soil texture is sand Soil texture is complete</p>

Answer the following questions after completing the experiment.

1. Did you run into any problems while using the key test? Explain
2. Did you run into any problems while using the triangle test? Explain.
3. Which test do you think was the more accurate test? Explain.
4. What is soil texture?
5. How does soil texture affect how water moves through it?
6. What other soil properties are determined by soil texture?
7. What are the characteristics of sand?
8. What are the characteristics of silt?
9. What are the characteristics of clay?