

Project 2.1.7 Lab Report Template

Problem

How could one come across top soil and subsoil and what properties are those soils composed of?

When soil particles cling together in an arrangement known as a ped, it is called structure. There are also many different types of grades. The structure grade is the strength of the ped. The different types of structure types are granular and this type is typically a rough spherical and like grape nuts. Platy, this one is flat and lies horizontally in the soil. Blocky is roughly, cubed shaped with more or less flat structures. Prismatic is larger and usually has 5 sides. There are two different structure less types these two are massive and single grain. Massive is defined as compact, small pores, slow permeability and slow aeration. Simple grain is every grain acts independently, no binding agent, and permeability is rapid. While researching top soil and sub soil I hope to find the textural classification, the porosity, permeability, and water holding capacity. The textural classification of sand is round shape, feels gritty. It attributes to soil by adding porosity and reduces water holding capacity. The textural classification of silt is round shape but it is extremely small and hard to detect, feels smooth but does not stick together. It attributes to are it is moderately good for porosity, and helps water holding capacity. The textural classification of clay is flat or platy, and sticky when wet. Clay is bad for porosity and ties up water so plants are not able to use it.

Hypothesis

What are your predictions? What do you expect the results to be?

I believe that the top soil will have a more dry texture and it to be granular. I believe the structure grade will be weak because there is not much water. I believe it will be a light brown with some gray and no presence of mottles. I believe that the subsoil will be more wet and blocky. I believe its structure grade will be blocky because of the possible presence of clay. I believe it will be a darker brown and a little red tint because of clay. I believe there will be a presence of mottles.

Materials

- List the supplies needed to conduct the experiment.
For this project every student will need the template, soil evaluation card, rubric, computer and took notes on our page at the soil pit.

Procedures

1. We went outside to the soil pit
2. We found out which was the top soil and sub soil
3. Then we felt for texture for both of the soils.
4. We collected our data from things we observed
5. Then we went inside to record our data on our computers.

Data Collection

Table 1. Summary of Findings

Digital Photo of Soil Profile	<p>Written summary of findings for each horizon as determined on the soil evaluation card</p> <p>Use a line to indicate horizon transitions</p>
	<p>First Horizon: For the first horizon I found that the color of the soil was brown with a little bit of dark gray. The texture felt like sandy clay loam. The structure type was prismatic and its grade was strong.</p> <p>Second Horizon: The second horizon had a dark grey with a little bit of brown in it. The texture was a sandy clay. The structure type was granular and did not have much structure to it because it was wet and was not put together.</p> <p>Third Horizon:</p> <p>Fourth Horizon:</p>

Table 2. Texture Determination of Soil Samples

Your Findings	Class Average or Official Analysis	Explanation for Potential Differences

<p>First Horizon (<u>0</u> to <u>5</u> inches)</p> <p>Color <u>4</u></p> <p>Texture <u>4</u></p> <p>Coarse Fragments <u>3</u></p> <p>Structure Type <u>4</u></p> <p>Structure Grade <u>4</u></p> <p>Horizon Name <u>7</u></p>	<p>First Horizon (<u>0</u> to <u>8</u> inches)</p> <p>Color _____</p> <p><u>2</u> Texture</p> <p>Coarse Fragments _____</p> <p>Structure Type _____</p> <p>Structure Grade _____</p> <p><u>2</u> Horizon Name</p>	<p>The difference between my findings and official analysis was the inches measured in the first horizon. The official analysis was a 3 inch difference because I saw something different. The texture was different because it was wet and the way it felt was different.</p>
<p>Second Horizon (<u>6</u> to <u>12</u> inches)</p> <p>Color <u>4</u></p> <p>Texture <u>5</u></p> <p>Coarse Fragments <u>2</u></p> <p>Structure Type <u>1</u></p> <p>Structure Grade <u>1</u></p> <p>Horizon Name <u>7</u></p>	<p>Second Horizon (<u>28</u> to <u>34</u> inches)</p> <p>Color _____</p> <p><u>5</u> Texture</p> <p>Coarse Fragments _____</p> <p>Structure Type _____</p> <p>Structure Grade _____</p> <p><u>7</u> Horizon Name</p>	<p>The second horizon official analysis was a lot deeper than I thought. I was not able to tell how deep the second horizon because of the water filled in the bottom. I was correct about the texture and horizon name.</p>
<p>Third Horizon (___ to ___ inches)</p> <p>Color _____</p> <p>Texture _____</p> <p>Coarse Fragments _____</p> <p>Structure Type _____</p> <p>Structure Grade _____</p> <p>Horizon Name _____</p>	<p>Third Horizon (___ to ___ inches)</p> <p>Color _____</p> <p>Texture _____</p> <p>Coarse Fragments _____</p> <p>Structure Type _____</p> <p>Structure Grade _____</p> <p>Horizon Name _____</p>	

Fourth Horizon (___ to ___ inches)	Fourth Horizon (___ to ___ inches)	
Color _____	_____ Color	
Texture _____	_____ Texture	
Coarse Fragments _____	_____ Coarse Fragments	
Structure Type _____	_____ Structure Type	
Structure Grade _____	_____ Structure Grade	
Horizon Name _____	_____ Horizon Name	

Analysis of Results

Throughout this lab we learned many things about top soil and subsoil. They were different in many ways but alike too. The textures were both different. It felt like the subsoil had a lot more clay in it. The texture of the first horizon had more of a sandy clay texture. In this lab I learned many new things about top soil and sub soil.

Conclusions

Many parts of my hypothesis were correct but I also was incorrect at points. I was correct about the top soil being more granular than the subsoil. The structure grade was strong because the water was holding it together, this part of my hypothesis I was incorrect. I thought everything would be extremely dry but everything was wet. It was all wet because of sprinklers which changed my results in my charts. I thought the subsoil would have a red tint but it just had a dark grey and brown. It still felt like clay though. Over all I thought I understood this project more at the end it all came together and made sense. I learned a lot in this project about texture, soil structure, structure types and structure grade.