

SOIL CHARACTERIZATION: FIELD WORKSHEET



Name: _____

Class: _____

Date: _____

1. Site Name: _____ Site Location: _____

2. Scrape of the top layer of debris to expose fresh soil. This will be horizon #1. Describe it below:

Horizon Description: _____

3. Are there any organisms in the soil? This could include bugs, tree roots, fungal hyphae, earthworms, or just about anything else:

3. How many rocks are in this soil horizon? ___ None ___ Few ___ Many

4. How many roots are on this horizon? ___ None ___ Few ___ Many

5. Take a palm-sized sample of soil. Is it wet, dry, or moist? ___ Wet ___ Dry ___ Moist

6. If the soil is dry, moisten it slightly with water. Now examine the soil structure. Is it:

___ Granular (like cookie crumbs) ___ Blocky (irregular, 1.5-5 cm in diameter)

___ Prismatic (vertical columns of soil, usually found in lower horizons)

___ Columnar (vertical columns with a white "cap" on top; usually in dry soils)

___ Platy (thin plates of horizontal soil; always found in compacted soil)

___ Single-Grained (individual particles that do not stick together)

___ Massive (very large clods, hard to break apart)

7. Take the soil sample into the sunlight, and compare its color to your Munsell Color Chart. Record the dominant color here: _____

8. Measure the soil consistence by picking out a small bead of soil and squeezing it between your finger and thumb until it disintegrates. Is it:

___ Loose: you had trouble gathering enough soil to sample in your fingers before it falls apart.

___ Friable: the sample breaks with only minimal pressure.

___ Firm: the sample breaks after a larger amount of pressure.

___ Extremely firm: normal finger-strength was not able to crush the sample.



9. Use the steps below to determine soil texture. Once you have determined the texture, record on the line provided:

Step 1: Place some soil from a horizon (about the size of a small egg) in your hand and use the spray mist bottle to moisten the soil. Let the water soak into the soil and then work it between your fingers until it is thoroughly moist. Once the soil is moist, try to form a ball. If the soil forms a ball, go on to **Step 2**. If the soil does not form a ball, call it a sand. Soil texture is complete. Record the texture below.

Step 2: Place the ball of soil between your thumb and index finger and gently push and squeeze it into a ribbon. If you can make a ribbon that is longer than 2.5 cm, go to **Step 3**. If the ribbon breaks apart before it reaches 2.5 cm, call it a loamy sand. Soil texture is complete. Record the texture below.

Step 3: If the soil:

- Is very sticky - Hard to squeeze - Stains your hands - Has a shine when rubbed
- Forms a long ribbon (5+ cm) without breaking,

Call it a clay and go to **Step 4**.

Otherwise, if the soil:

- Is somewhat sticky - Is somewhat hard to squeeze - Forms a medium ribbon (between 2-5 cm)

Call it a clay loam and go to **Step 4**.

Otherwise, if the soil is:

- Smooth - Easy to squeeze - At most slightly sticky - Forms a short ribbon (less than 2 cm)

Call it a loam and go to **Step 4**.

Step 4: Wet a small pinch of the soil in your palm and rub it with a forefinger. If the soil:

- Feels very gritty every time you squeeze the soil, go to **A**.
- Feels very smooth, with no gritty feeling, go to **B**.
- Feels only a little gritty, go to **C**.

A. Add the word sandy to the initial classification.

Soil texture is either: sandy clay, sandy clay loam, or sandy loam. Record below.

B. Add the word silt or silty to the initial classification.

Soil texture is either: silty clay, silty clay loam, or silt loam. Record below.

C. Leave the original classification.

Soil texture is either: clay, clay loam, or loam. Record below.

Soil Texture: _____

10. Measure the **free carbonates** in the soil: using the trowel, set aside a sample of soil to be used for the free carbonates test. **DO NOT TOUCH THIS SOIL WITH YOUR HANDS.** Squirt vinegar on your removed sample, and observe for effervescence (bubbling). Record the level of free carbonates as:

___ **None** (no reaction) ___ **Slight** ___ **Strong** (many and/or large bubbles)

** You have now completed the soil characterization of one horizon of soil. Now, use your trowel to dig vertically into the soil until you note marked changes in: color, texture, composition (ie rocky, sandy, loamy), moisture, and smell. When you reach a point where this changes, place a T-pin horizontally in the soil and measure the depth. This will be the "bottom" depth for your first horizon and "top" depth for your second. Repeat the entire soil characterization process for as many horizons as feasible, and record all findings on the table on the next page.



Horizon Number	Organisms? If so, what?	Rock	Wet, dry, or moist?	Structure	Color	Consistence	Texture	Carbonates	Depth to Top	Depth to Bottom
1									0 cm	
2										
3										
4										
5										
6										
7										

