

Name: _____ **ANSWER KEY** _____ Pd. _____ Date: _____

Soils Study Guide

1. Soil is a naturally occurring body of thick layers comprised of what two (2) things?

A. _____ **minerals** _____

B. _____ **organic (dead & decaying) material** _____

2. What are the three (3) ways that soil differs from parent material?

A. _____ **physically** _____

B. _____ **biologically** _____

C. _____ **morphologically (how it's made)** _____

3. There are five (5) soil-forming factors. Using the word bank, match the word to the correct soil forming factor:

climate

organics

slope

time

parent material

_____ **Organics** _____ vegetation and animals (both decaying and root action)

_____ **Time** _____ how long it has been there (age)

_____ **Climate** _____ the amount of rain and other biological factors

_____ **Slope** _____ amount of water runoff

_____ **Parent Material** _____ type of rock the soil is made of

4. What two (2) things can soil color tell you?

A. _____ **How soil was created** _____

B. _____ **What soil is made up of (darker = organics)** _____

5. What is used to determine soil color?

A. Mearcell Color Scale

B. Morse Color Coding

C. Munsell Color Chart

6. Match the Soil Color term with the correct definition

A. The lightness or darkness of the color

__C__ Hue

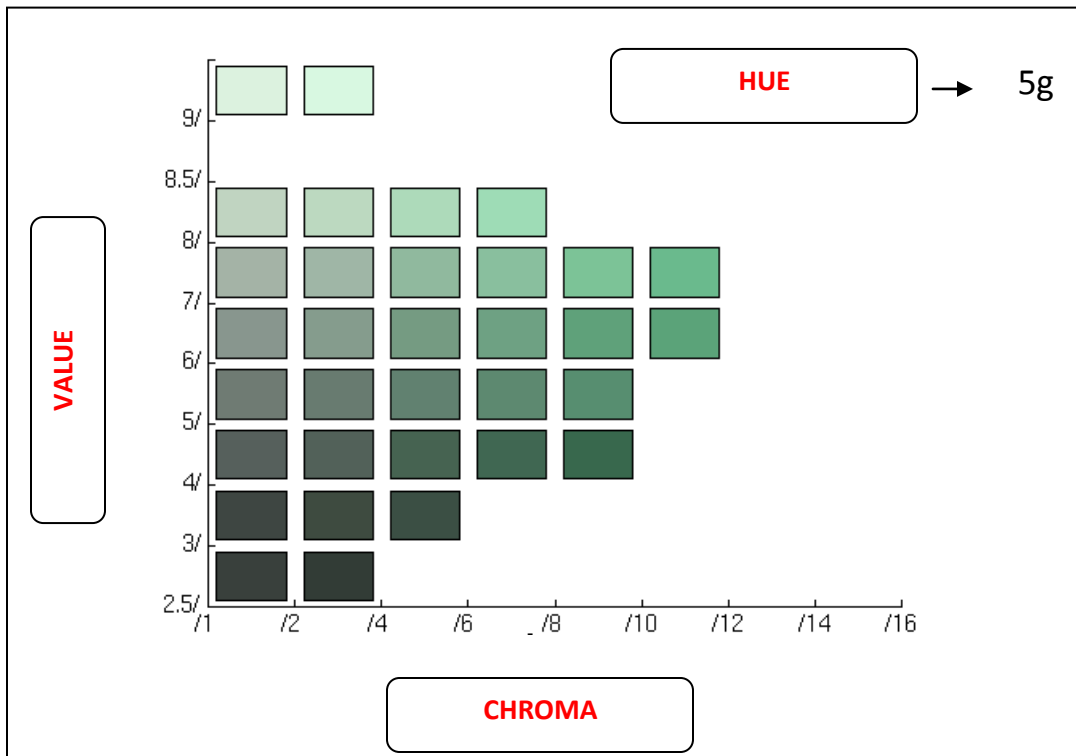
B. The strength or depth of color

__A__ Value

C. The relation of the color to red, yellow, green, blue or purple.

__B__ Chroma

7. Below is a Soil Color Test Page. Label the boxes with the following information: Chroma, Hue, Value



8. Given the following: 6R2/7, identify the following:

Value: __2__

Hue: __6R__

Chroma: __7__

9. How does weathering differ from erosion?

Weathering is the process of breaking down rock. Erosion is the breaking down AND transport of those rocks.

10. There are two types of weathering. Complete the weathering chart noting the types of weathering and the things associated with each type of weathering.

Types of Weathering →	Mechanical (Physical Breakdown)	Chemical
Things associated with that type of weathering	<ol style="list-style-type: none"> 1. Frost action 2. Shrink/Swell 3. Root Action 	<ol style="list-style-type: none"> 1. Acid Rain

11. What three things cause erosion?

- A. **Wind**
- B. **Water**
- C. **Ice (Glaciers)**

12. Write the name of each type of coarse fraction next to the correct size.

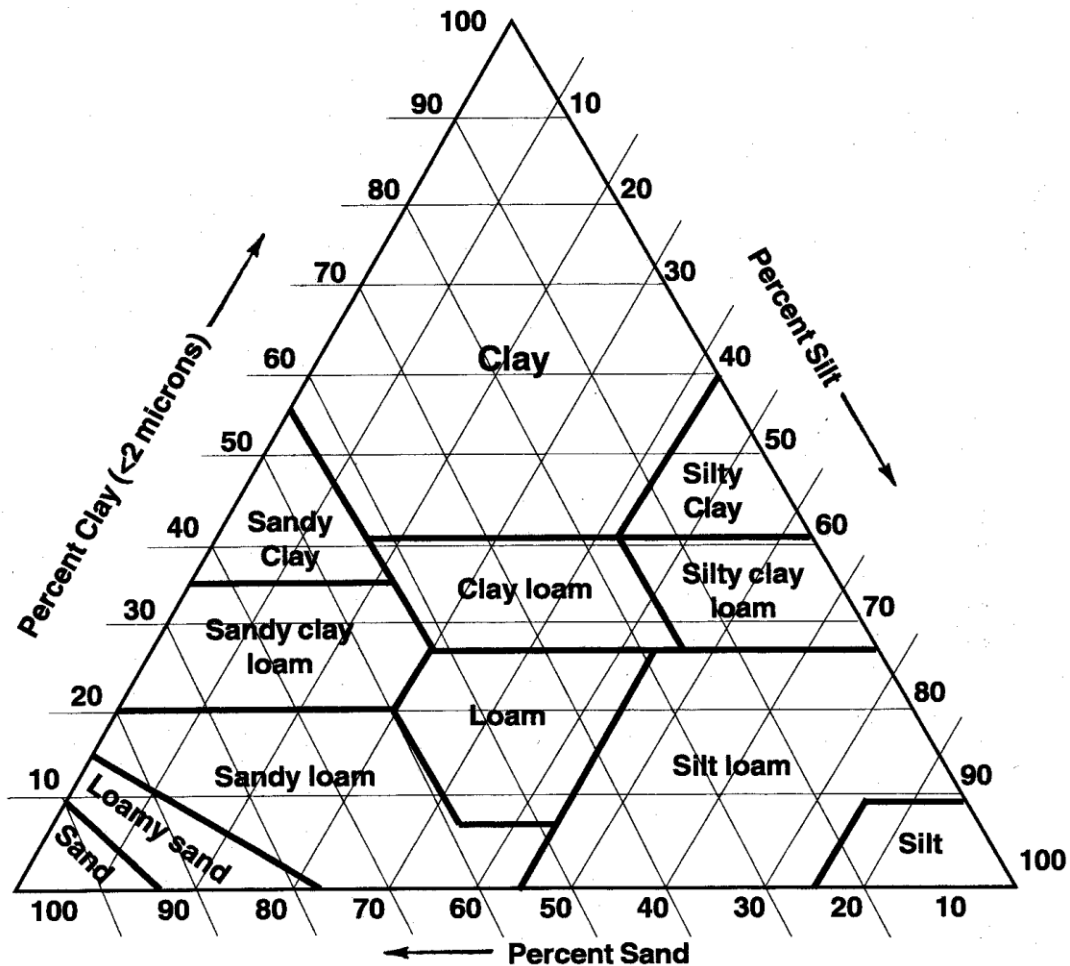
- Cobbles** 75mm – 200mm
- Boulders** greater than 600mm
- Gravels** 2mm - 75mm
- Stones** 250mm – 600mm

13. Write the name of each soil separate next to the correct size.

- Clay** smallest
- Silt** mid-sized
- Sand** largest

- **Note: Clay is the most important grain size because it holds nutrients for plants**

15. Using the textural triangle, identify the type of soil present.



	Percent Sand	Percent Silt	Percent Clay	Soil Texture
Soil 1	93	6	4	Sand
Soil 2	34	21	62	Clay
Soil 3	50	17	31	Sandy Clay Loam
Soil 4	10	43	48	Silty Clay
Soil 5	45	35	20	Loam

16. Using the words sand, silt, clay or loam; answer the following questions:

- A. Which soil separate would allow water to drain the fastest? **Sand**
- B. Which soil separate would not allow water to drain easily? **Clay**
- B. Which soil separate decreases porosity? **Clay**
- D. Which soil separate increases permeability? **Sand**
- E. Which soil type is considered a perfect soil? Why? **Loam – It is the best mix of sand, silt and clay**

17. Match the soil horizon with the correct definition

B Horizon R Horizon A Horizon E Horizon C Horizon O Horizon

C Horizon _____ - Also called **regolith**. It consists of slightly broken-up bedrock. Plant roots do not penetrate into this layer; very little organic material is found in this layer. (In notes: Mr. Sheerer used weathered rock instead of regolith)

E Horizon _____ - This **eluviation** (leaching) layer is light in color; It is made up mostly of sand and silt, having lost most of its minerals and clay as water drips through the soil (in the process of eluviation). (In notes: Mr. Sheerer called eluviation the sandy layer)

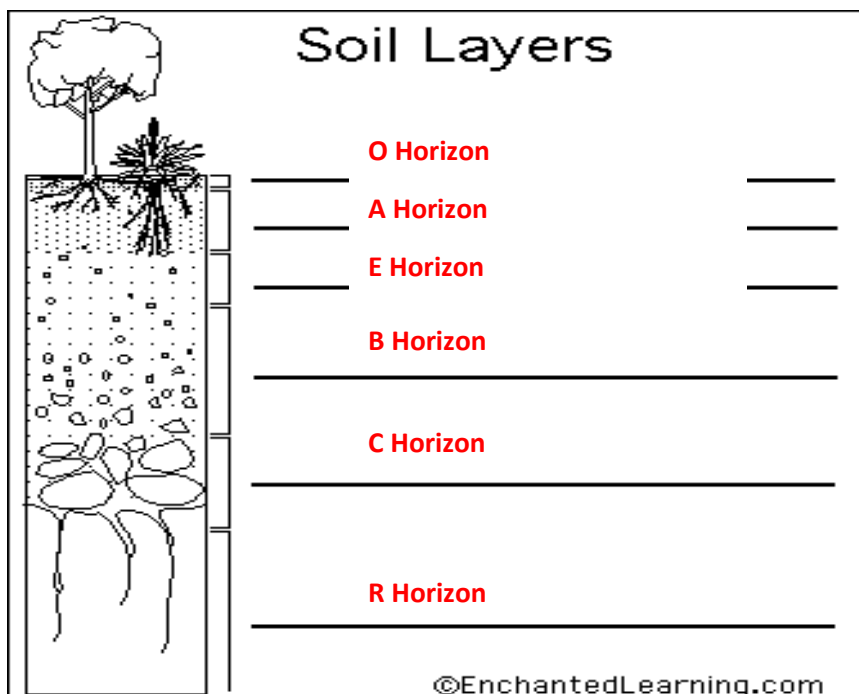
B Horizon _____ - Also called the **subsoil**. It contains clay and mineral deposits (like iron, aluminum oxides, and calcium carbonate) that it receives from layers above it when mineralized water drips from the soil above. (In notes: Mr. Sheerer used silt and clay instead of subsoil)

R Horizon _____ - The unweathered rock (**bedrock**) layer that is beneath all the other layers.

O Horizon _____ - The top, organic layer of soil, made up mostly of leaf litter and **humus** (decomposed organic matter).

A Horizon _____ - The layer called **topsoil**; Seeds germinate and plant roots grow in this dark-colored layer. It is made up of humus (decomposed organic matter) mixed with mineral particles.

18. Label the Soil Horizons in the picture below. (Use the Horizons above for labeling)



14. Complete the Parent Materials Graphic Organizer

