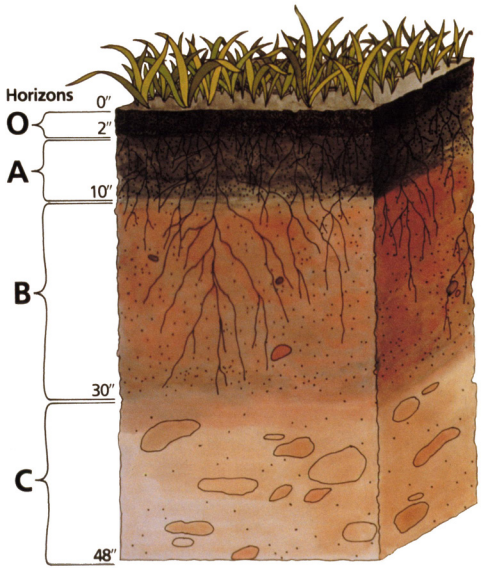
What is Soil?

"A living, dynamic system at the interface between air and rock. Soil forms in response to forces of climate and organisms that act on parent material in a specific landscape over a long period of time."

Huddleston, J., & Kling, G. F. (1996). Manual for Judging Oregon Soils (6th ed., p. 3). Corvallis, OR: Oregon State Extension Service.

What is a Soil Horizon?

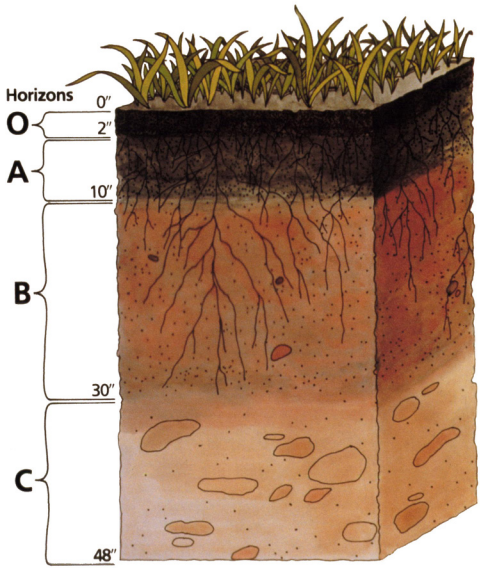
A layer of soil that forms from physical, chemical and biological properties resulting from soil forming processes. Each is distinguishable by certain characteristics which you will learn more about as you read each horizon card. You can see the horizons labeled in the picture to the right as O, A, B and C.



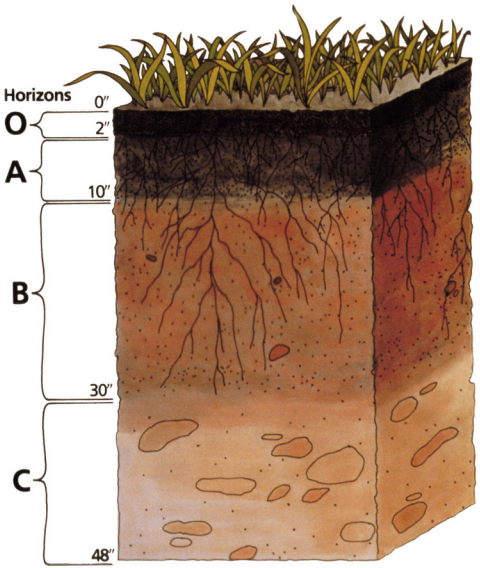
A Soil Profile is.....

A vertical view of the soil that displays the divided layers or horizons. Soil profiles tell the stories about the area and are different from place to place.

(See example of soil profile in picture on the right)



How does Soil form?

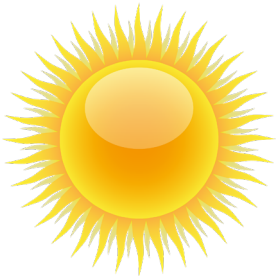


There are five soil forming factors that play an important part in determining the type of soil that can be found in an area. We use the word CLORPT to help us remember them!

CL-Climate
OR- Organisms
P- Parent Material
T-Time and Topography

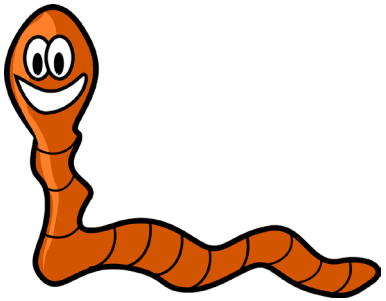
CLORPT- Climate

Temperature and rainfall affect the color of the soil, acidity levels, and presence of organic matter. Leaching, or the removal of soil materials, occurs during high rainfall by water that is flowing through the soil. Soils in climates that are warm and moist have lots of organic matter and support plant growth, opposite of hot and dry climates.



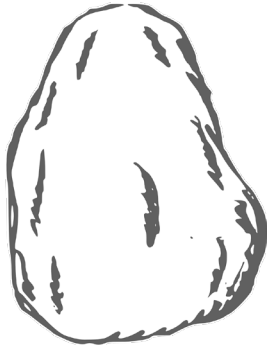
CLORPT-Organisms

Organisms in the soil, such as plants and animals, play an important role in increasing organic matter and humus in the soil providing nutrients to the soil. Roots on plants help to mix soil particles and break up large rocks in the soil, providing channels for movement of water and air. The foliage of the plant decays and adds organic matter to the soil. Animals within the soil, such as earthworms, insects, and burrowing animals, help in continued mixing of the soil and carry plant debris down to the topsoil.



CLORPT- Parent Material

Parent material is weathered geological matter that has formed the soil that we see. Most parent materials are a type of bedrock such as sandstone or basalt. Sediments that are translocated by water, wind, or ice, such as volcanic ash, lake laid silts, dune sand, and glacial gravels, are other parent material types.



CLORPT- Time and Topography

Young soils share similar characteristics and properties with their parent material. As soil gets older and new characteristics are forming, the inherited properties become less and less evident. The position of the landscape causes soil moisture, temperature, and parent material to change. Slopes can cause the collection of water at the bottom with little to no collection at the top. The bottom of the slope can also collect transported materials that may not be present at the top. Directional slopes can also have different temperatures. A north-facing slope could be cooler than a south-facing slope.