

P. 300-301

## **Soil**

311-3

<https://www.youtube.com/watch?v=uMIZ-Tbe0XY>



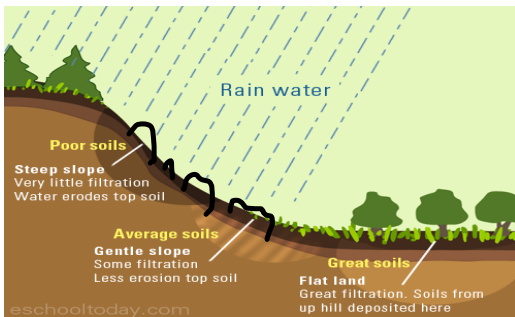
**Soil:** A mixture of weathered rock, organic matter, mineral fragments, water and air.

### **Formation Of Soil**

Earth is covered by a layer of rock and sediment. Sediment and mineral fragments become soil after animals and plants have lived in them and added organic matter. This creates space that can be filled with water and air. All of this combines to make soil.

## Earth Crust - (pt 3 Soil)

Soil formation is influenced by climate, type of rock, moisture and even slope.



If the slope is steep, loose dirt will run off with each rainfall and leave barren rocks.

Small living creatures that live in the soil can speed up the process of soil formation.

Insects, rodents, bacteria and organic matter all decay to make compost. Compost mixes with other matter and creates a dark portion of soil called humus.

Fertile soil is one that can supply nutrients for plant growth. Soils that develop near rivers and lakes are generally rich in nutrients.



Soil Profile

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**Soil Profile:** description of the characteristics of the different layers that make up a particular soil.

**Topsoil:** The top most layer of soil which is dark colored and rich in humus.

**Humus:** the dark-colored part of the soil that is rich in nutrients, such as nitrogen, phosphorous, potassium, and sulfur

**Leaching:** The removal of soil materials dissolved in water.

**Bottom layer** is weathered rock and minerals leached from above.

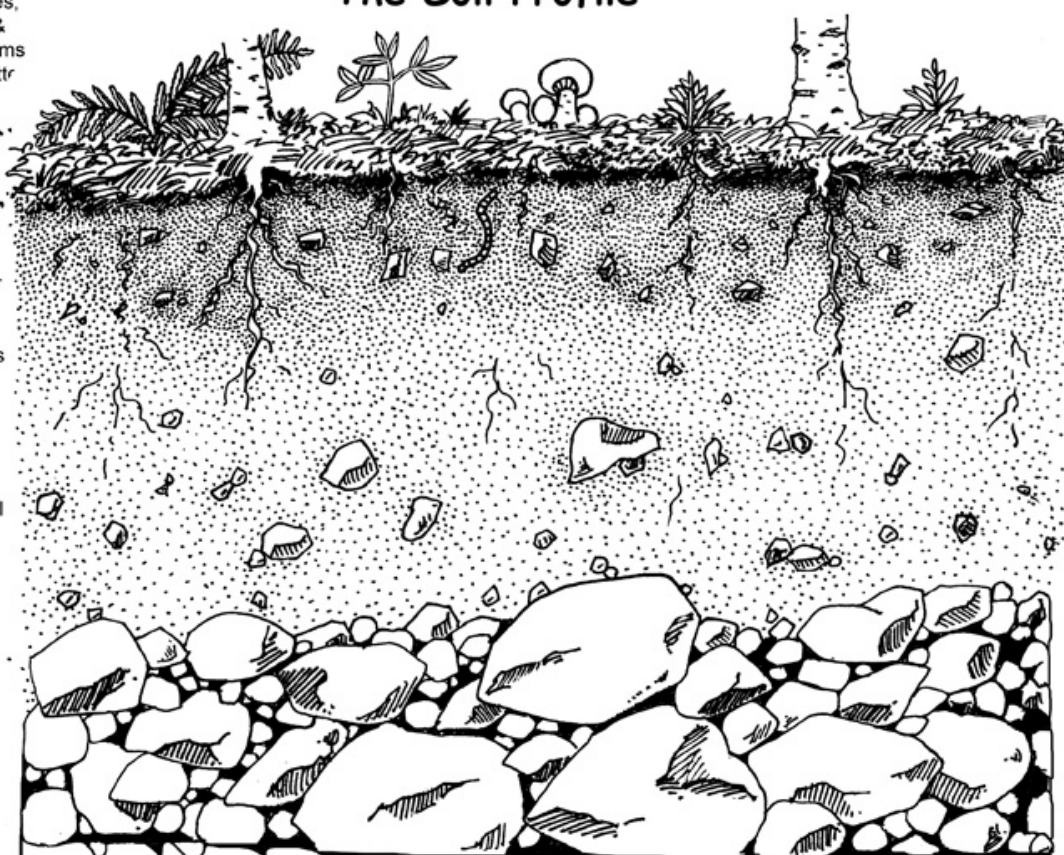
**Surface Litter**  
leaves, branches,  
animal scats &  
bodies, mushrooms  
other rotting matter

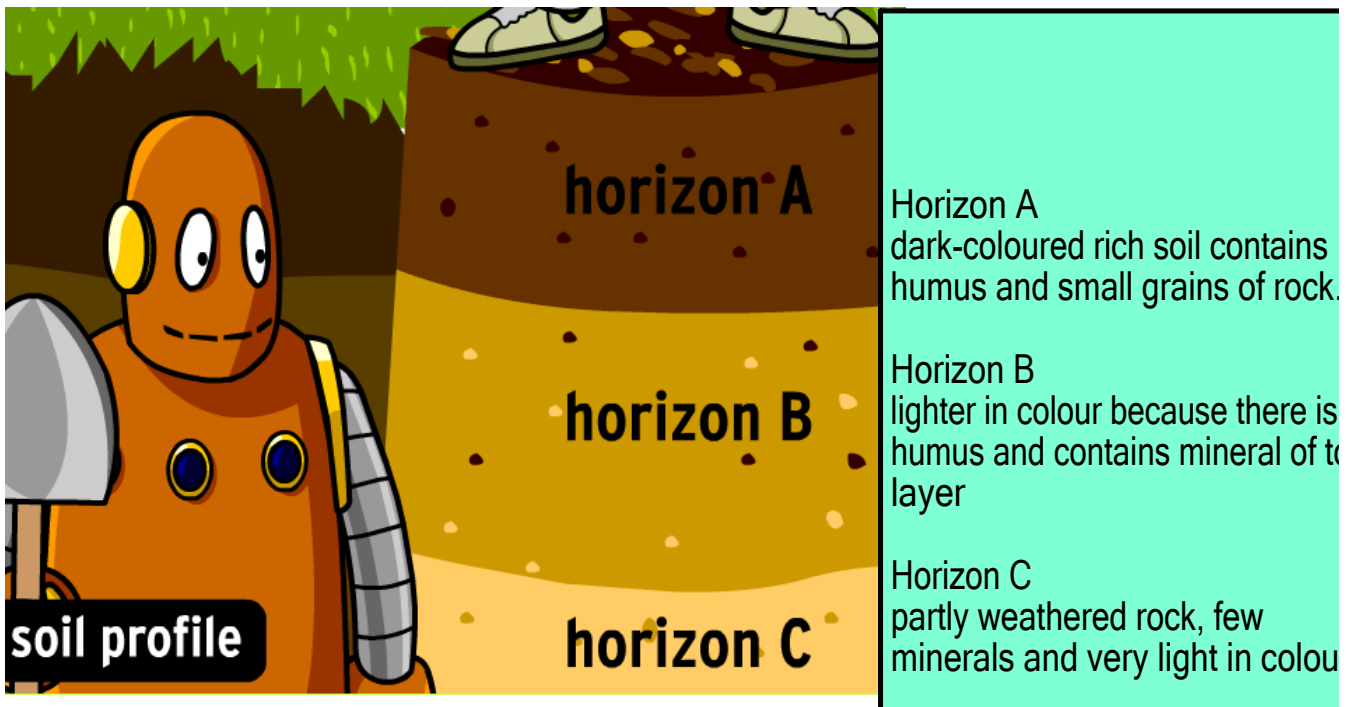
**Topsoil Layer  
(or humus)**  
rotting organic  
matter from litter  
layer and  
minerals from  
weathering rocks

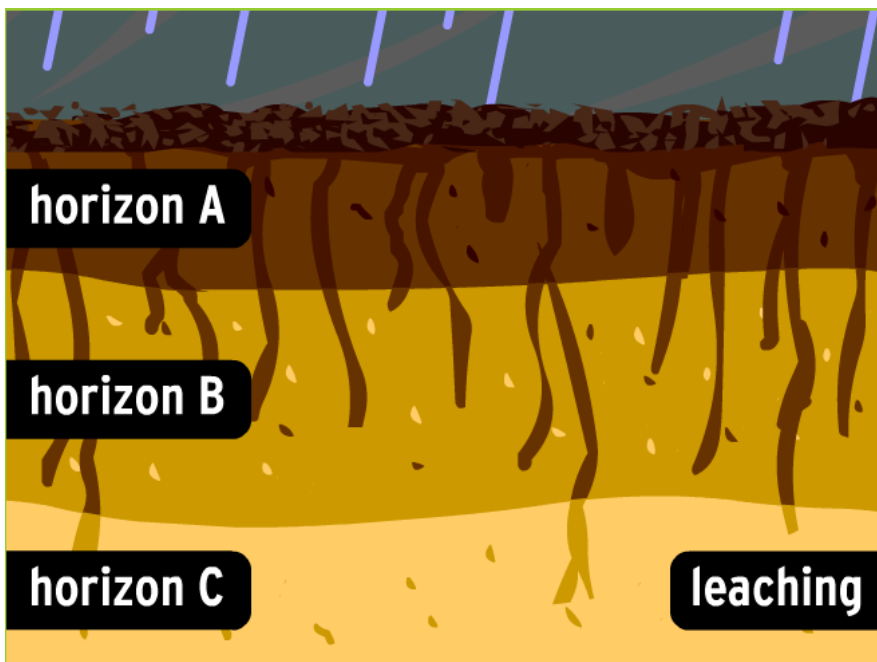
**Subsoil**  
crumbling rock,  
sand, clay, gravel  
and silt

**Parent  
Material**  
actual bedrock  
underlying the  
soil layers

## The Soil Profile



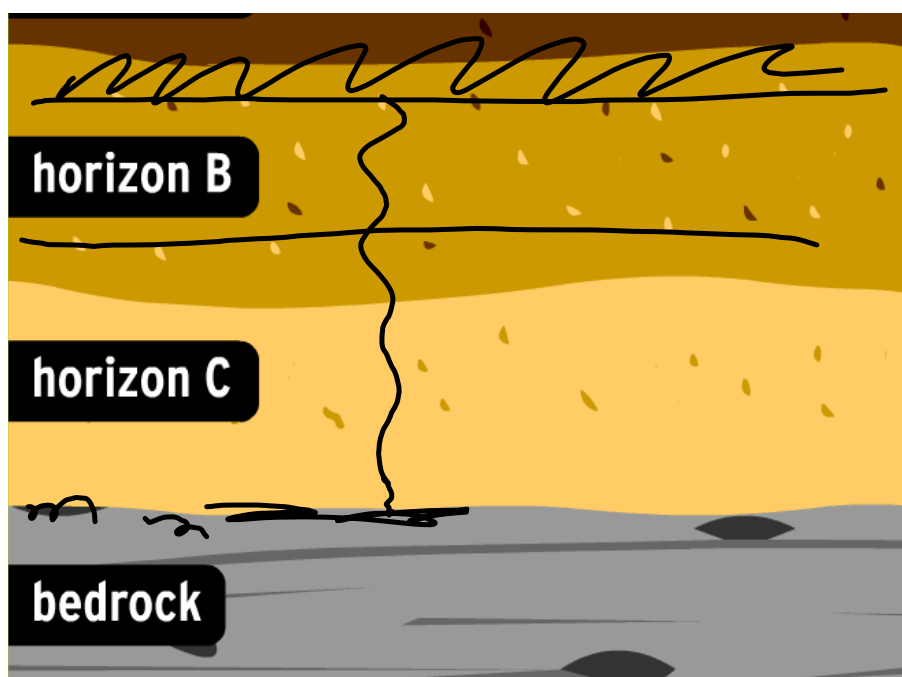




Explain the Concept of Leaching?

Leaching is the removal of soil materials dissolved in water.

minerals from horizon A spread through the cracks down to the lower horizons.



What is Bedrock?

The layer of rock that has not started to be broken down, it is solid.

<http://www.brainpop.com/science/theearthsystem/soil/zoom.weml>



## Earth Crust - (pt 3 Soil)

### Soil Texture



**Texture:** is how soil feels when its rubbed between two fingers. This can tell us what is in soil and what it can do.

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## Earth Crust - (pt 3 Soil)

The formation of topsoil depends on the size of rock fragments.

The particle size affect how gritty a soil feels when you rub it between your fingers.

Texture and particle size are factors that determine how quickly water will rain through the soil. (permeate the soil)

If the soil is sandy, rain-water permeates too quickly. (low water-holding capacity).

Water-holding capacity refers to a soil's ability to hold water. Clay particles are small and fill up most of te spaces in soil, leaving little room for air and water. Rain water often sits on top in piddles an soaks very slowly. Clay has a high water-holding capacity.

Diameter (mm)	Particle Type	Sediment Name	Sedimentary Rock
More than 256	Boulder	Gravel	Conglomerate or Breccia
64 to 256	Cobble		
4 to 64	Pebble		
2 to 4	Granule		
$\frac{1}{16}$ to 2	Sand	Sand	Sandstone
$\frac{1}{256}$ to $\frac{1}{16}$	Silt	Mud	Siltstone, Shale, or Mudstone
Less than $\frac{1}{256}$	Clay		

