

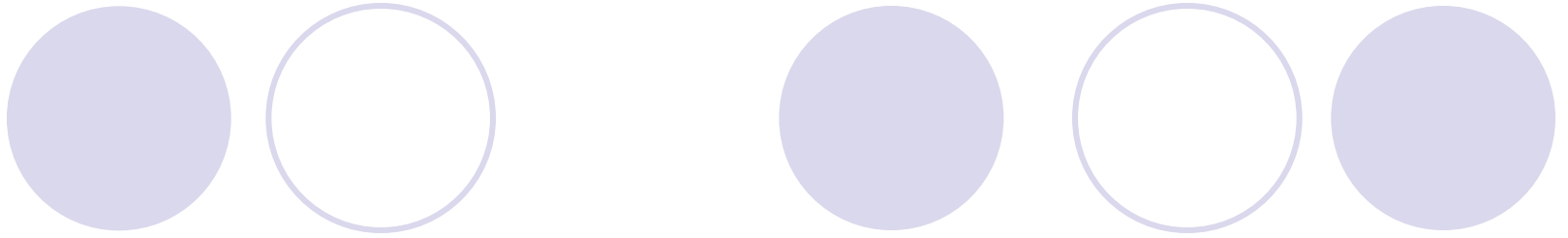
The Nature of Soil

7.2



I. Formation of Soil

- a. The surface of earth is covered by a layer of rock and mineral fragments produced by weathering



b. Weathering gradually breaks rocks into smaller and smaller fragments but the fragments are not soil until plants and animals live in them

- Plants and animals add organic matter such as leaves, twigs, and dead worms and insects to the rock fragments

c. Soil is a mixture of weathered rock, organic matter, mineral fragments, water and air

- Soil is a material capable of supporting vegetation
- Climate, types of rock, slope, amount of moisture, and length of time rock has been weathering influence the formation of soil

d. Soil can be considered a complex ecosystem

• Soil may contain small rodents, insects, worms, algae, fungi, bacteria and decaying organic matter.

- When material decays it continues to decay until the matter has disappeared and the material turns into dark-colored matter called humus
 - Humus serves as a source of nutrients for plants
 - It also promotes good soil structure and helps soil retain water

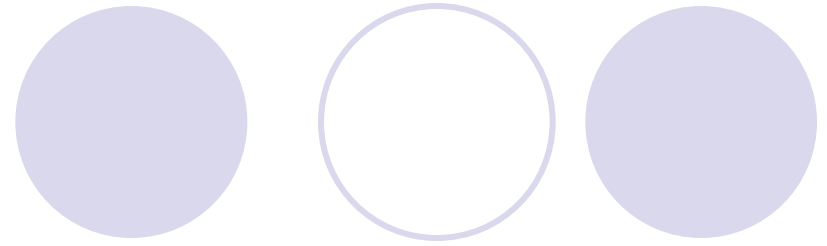


- e. Soil can take thousands of years to form and can range in thickness

- f. A fertile soil is one that supplies nutrients for plant growth
 - Soils that develop near rivers often are fertile


- g. Soils have small spaces in them that fill with air or water

II. Soil Profile



a. There are different layers of soil

- The top layer of soil is where plants grow and is darker than the soil layers below it



b. The different layers of soil make up what is called a soil profile and each layer in the profile is called a horizon

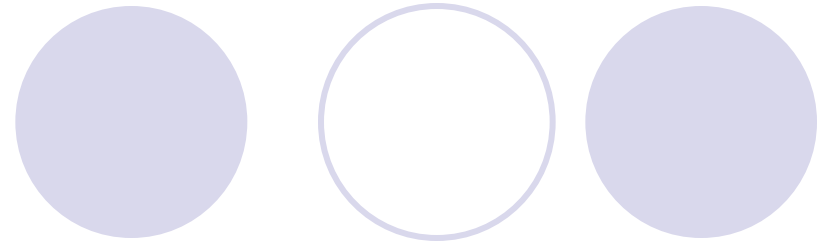
- There are generally three horizons labeled A, B and C



A. Horizon A

- a. The A horizon is the top layer of the soil also called topsoil
- b. Topsoil has more humus and smaller rock and mineral particles than the other layers of soil
- c. The A horizon is the most fully evolved soil layer in a soil profile meaning that it has changed the most from weathered rock

B. Horizon B



- a. The B horizon is the layer below the A horizon and is less evolved
- b. It is lighter in color because it has less humus



c. Leaching is the removal of soil materials dissolved in water

- Water runs down through the soil horizons leaching out soil materials and depositing them in the layers below



- d. In soil the water reacts with humus to form an acid that dissolves some of the elements from the minerals in the A horizon and carries them into the B horizon

C. Horizon C

- a. The C horizon is the bottom layer of a soil profile
- b. Some materials in this layer were leached from the B horizon and it does also contain partly weathered rock that is beginning the process of turning into soil
- c. Below the C horizon is solid rock

III. Types of Soil

The title 'III. Types of Soil' is positioned on the left side of the slide. To its right, there are three circles arranged horizontally. The first circle is solid light purple. The second circle is a light purple outline. The third circle is solid light purple.

- a. The texture of soil depends on the proportion of sand, silt, and clay

- b. Soil profiles vary from one place to the next
 - The samples may look different in a number of ways

- c. The thickness of the soil horizons and the soil composition of the profiles depend on a number of conditions



1. Climate

- The amount of precipitation affects how much leaching of minerals has occurred in the soil

2. Time

- Time changes the characteristic of soil



3. Slope

- On steep slopes soil horizons are often poorly developed
- A south-facing slope receives more solar radiation and has a different soil make up than a north-facing slope

4. Humus

- The amount of humus in the soil affects soil profiles

The United States has nine groups of soils that are recognized

1. Arctic
2. Mountain
3. Desert
4. Prairie
5. Glacial
6. Wetlands
7. River
8. Temperate
9. Tropical

