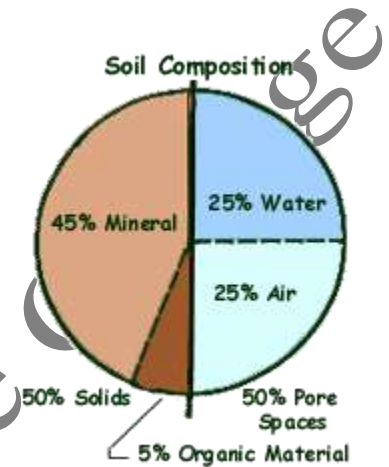


Soil Formation Worksheet**10 Points****Due 01/23/2022**

Soil is a mixture of weathered rock & organic matter that usually covers **bedrock** (solid rock that underlies all soil). Both chemical & mechanical processes are involved in the development of soils.

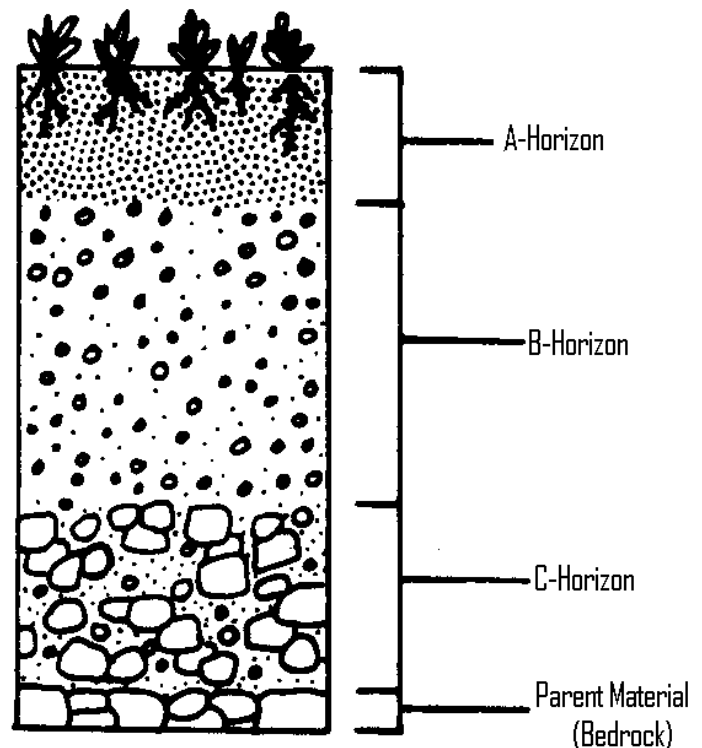
- Chemical weathering turns hard minerals into soft ones
- Mechanical weathering breaks solid rock into smaller pieces
- Plant & animals add organic materials in the form of waste products & dead organisms
- The decay of organic matter produces acids which accelerate chemical weathering
- Burrowing Animals, such as earthworms, insects, & rodents, help circulate air and water through the soil & mix mineral & organic remains



The material from which soil forms is called its **parent material**. Soil that has weathered directly from the bedrock beneath it and therefore matches its parent material is called **residual soil**.

Soil that does not match the bedrock it is over is called **transported soil**. It did not weather from the bedrock beneath it but was brought there by agents of erosion such as winds, rivers, or glaciers. Much of Ohio & the Midwest are covered by soil that was deposited by the movement of glaciers after the last Ice Age.

A cross section of soil exposed by digging is called the **soil profile**. The weathering of soil produces layers known as **soil horizons**. The topsoil or **A horizon** is usually rich in dark-colored organic remains called **humus**. The subsoil or **B horizon** contains minerals that have been transported deeper by groundwater. Most of the clay in soil has also been washed down to this layer. The partially weathered bedrock or **C horizon** is composed of broken up bedrock on top of the solid bedrock (parent material).



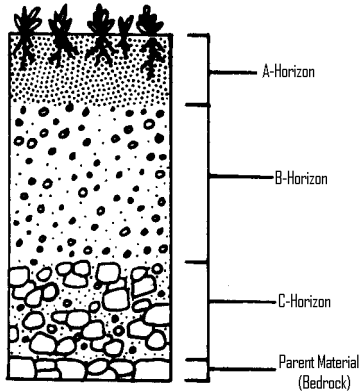
Soil erosion is the removal of topsoil by the action of running water or wind. It takes between 100 & 400 years for one centimeter of topsoil to form.

Loss of topsoil can be caused when plants root are no longer present to hold down soil. Salting roads can raise the salinity of the soil and kill the plants. Over grazing can kill plants. Winds, construction, & mining can all effect plant cover.

Use the worksheet above to answer the following questions.

_____ 1. Which layer in the diagram below contains the most organic material?

1. A 2. B 3. C 4. the bedrock



_____ 2. How is soil created from rock?

1. physical weathering without chemical weathering
 2. chemical weathering without physical weathering
 3. erosion
 4. both chemical and physical weathering

_____ 3. Approximately how many years does one inch of topsoil take to form?

1. 400 – 600 years 3. 4000 – 6000 years
 2. 10 – 40 years 4. 40,000 – 60,000 years

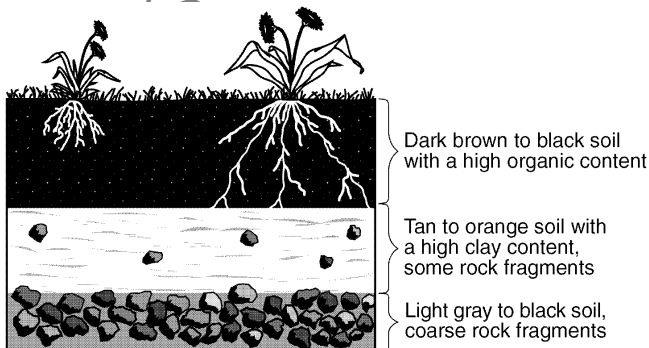
_____ 4. Which of the following is found in the greatest % in soil?

1. Mineral matter 2. Organic matter 3. Water 4. Air

_____ 5. Which layer of a soil profile forms first from the bedrock?

1. A horizon 2. B horizon 3. C horizon 4. Humus

_____ 6. The cross section below shows layers of soil



Which 2 processes produce the layer of dark brown to black soil?

1. Erosion and uplift 3. Compaction and cementation
 2. Melting and solidification of lava 4. Weathering and biological activity

- _____ 7. The mineral composition of a residual soil is most affected by the
1. Depth of the water table
 2. Elevation of the surface
 3. Type of bedrock material
 4. Steepness of hill slopes

- _____ 8. What factors most directly control the development of soils?
1. Earthquake intensity and volcanic activity
 2. Direction of prevailing winds and storm tracks
 3. Bedrock composition and climate characteristics
 4. Soil particle sizes and method of deposition

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