

# Chapter Soil

## 5.2A

**You will be able to...**

- *Identify the major components of soil*
- *List the most important factors in soil formation*



# 5.2 Characteristics of Soil

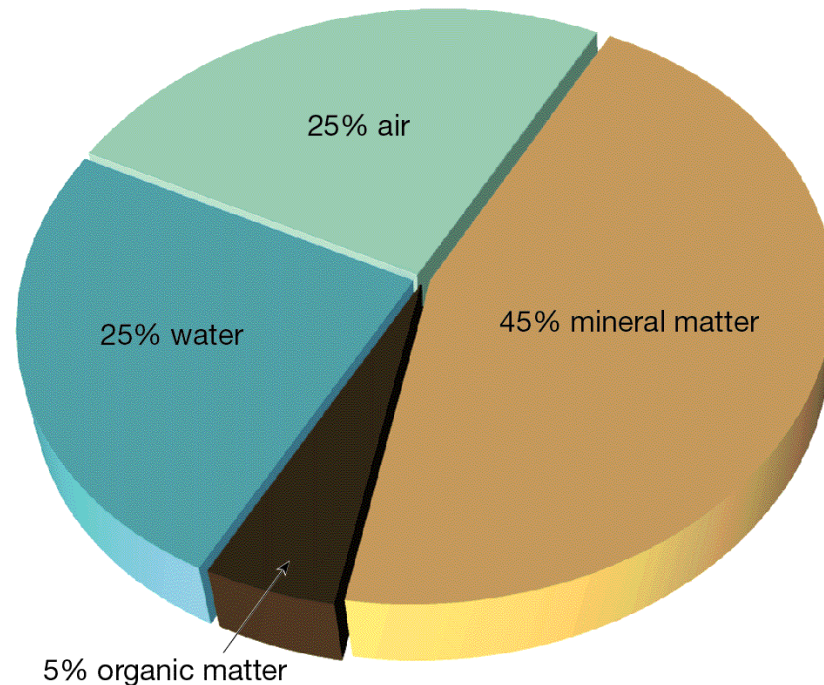
- ◆ **Soil** is part of the regolith that supports the growth of plants.
  - **Regolith** is the layer of rock and mineral fragments that covers most of Earth's land surface.



# 5.2 Characteristics of Soil

## ◆ Soil Composition

- Soil has four major components:
  - 1) Mineral matter, or broken-down rock;
  - 2) Humus, which is the decayed remains of organisms
  - 3) Water
  - 4) Air



# 5.2 Characteristics of Soil

## ◆ Soil Texture

- Texture refers to the proportions of different particle sizes.

- **Sand** (large size)



- **Silt** (*medium size*)



- **Clay** (small size)



# 5.2 Characteristics of Soil

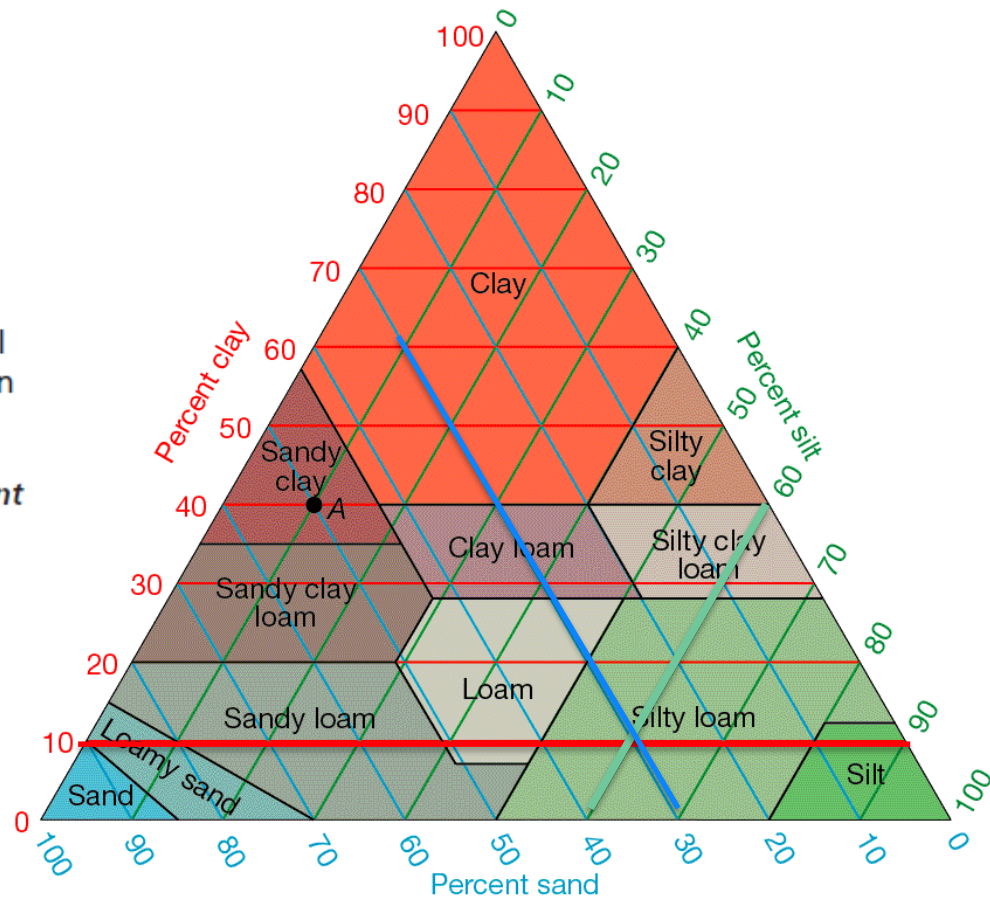
## ◆ Soil Texture

- Loam (a mixture of all three sizes) is best suited for plant life.

**Figure 11 Soil-Texture**

**Diagram** The texture of any soil can be represented by a point on this diagram.

**Interpreting Diagrams** What type of soil consists of 10 percent clay, 60 percent silt, and 30 percent sand?



# 5.2 Soil Formation

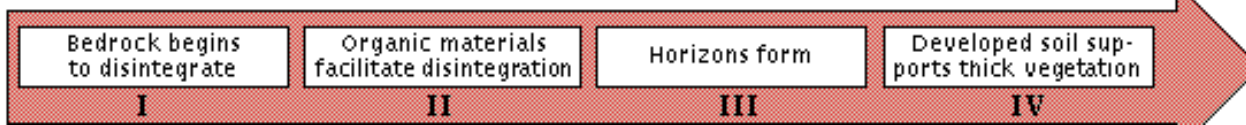
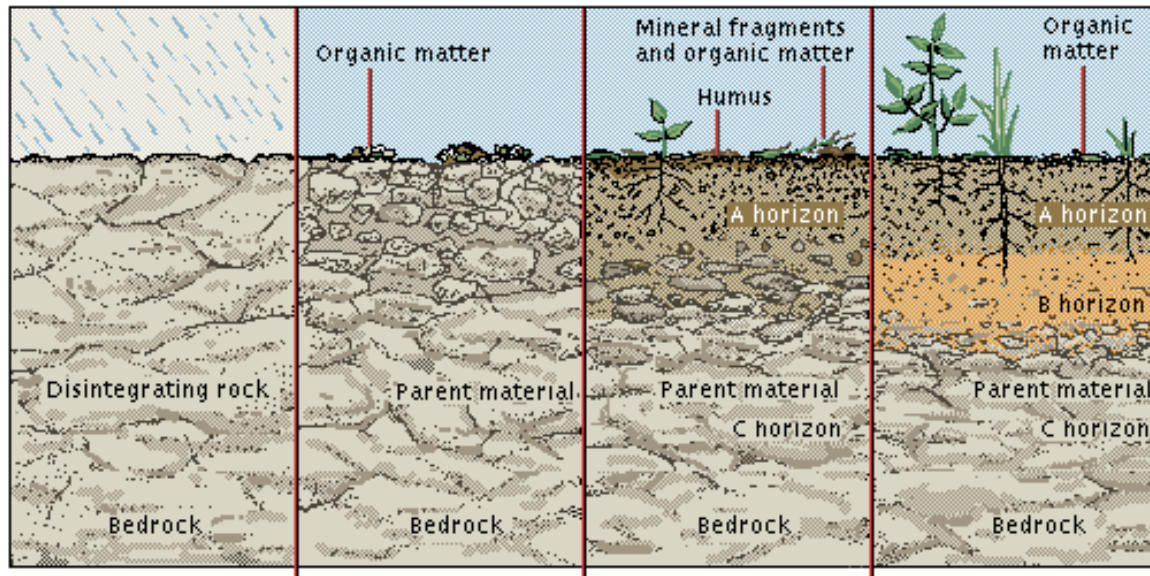
- ◆ The most important factors in soil formation are 1) parent material, 2) time, 3) climate, 4) organisms, and 5) slope.



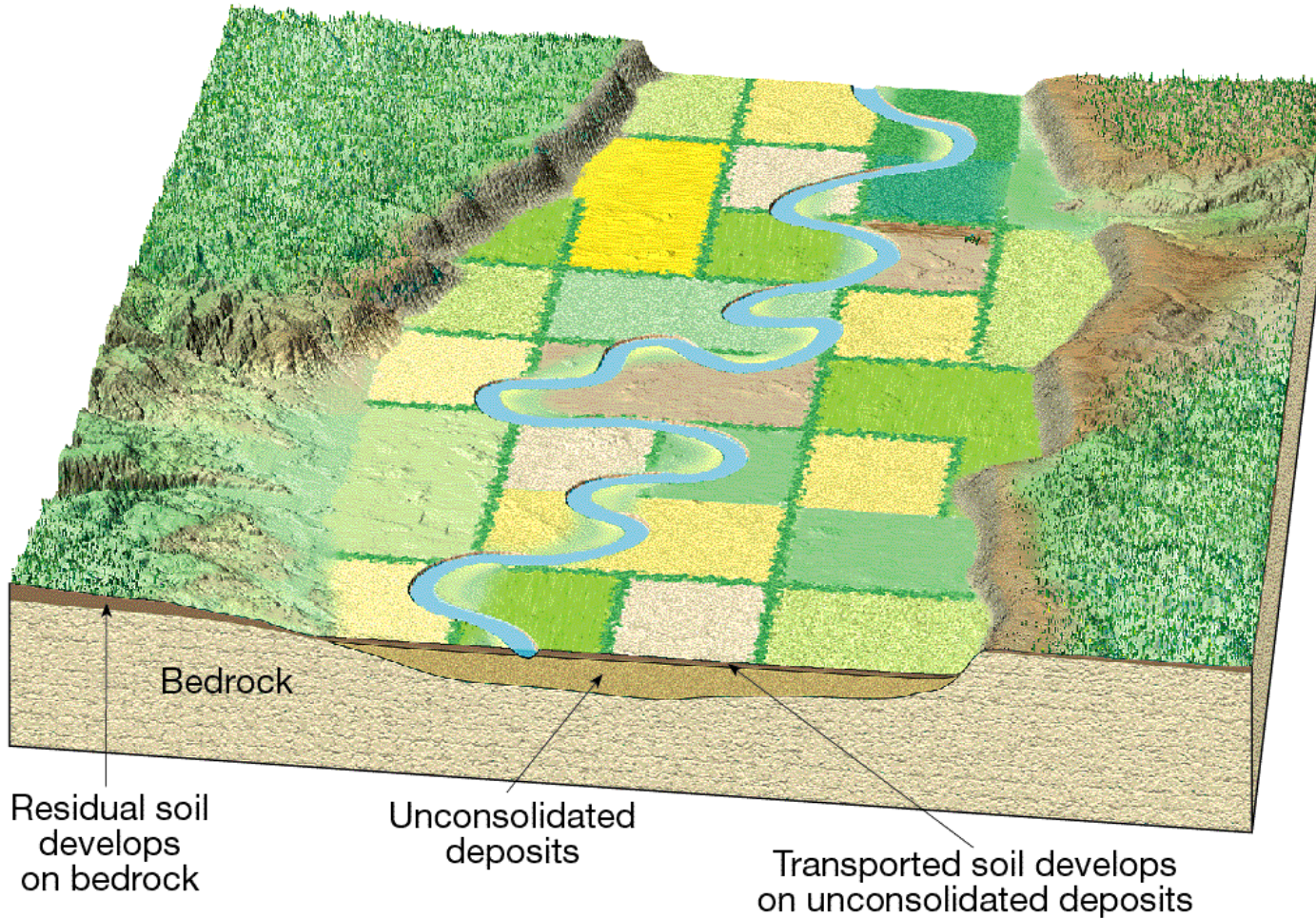
# 5.2 Soil Formation

## 1. Parent material

- *Residual soil*—parent material is the bedrock
- *Transported soil*—parent material has been carried from elsewhere and deposited



# Parent Material and Soils



# 5.2 Soil Formation

## 2. Time

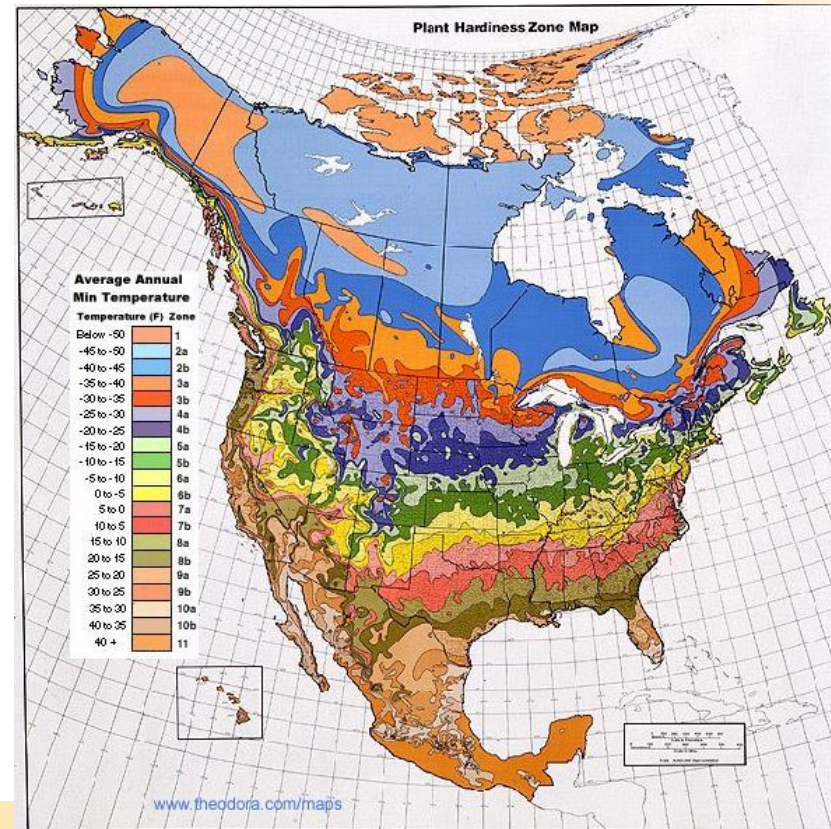
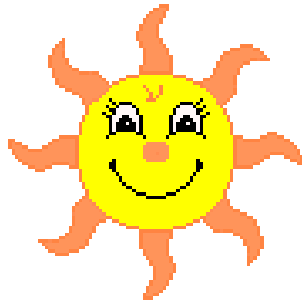
- Important in all geologic processes
- The longer a soil has been forming, the thicker it becomes.



# 5.2 Soil Formation

## 3. Climate

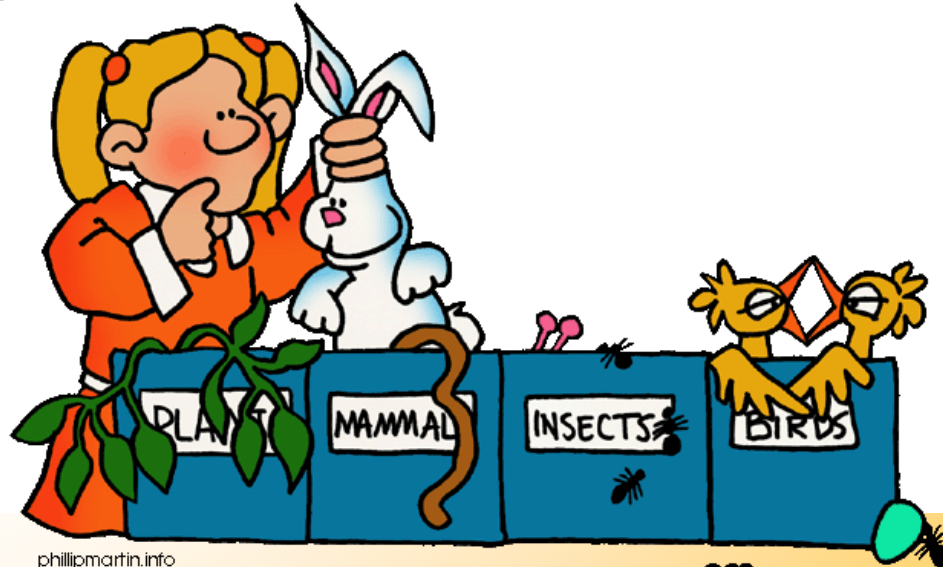
- Greatest effect on soil formation



# 5.2 Soil Formation

## 4. Organisms

- Organisms influence the soil's physical and chemical properties.
- They release nutrients into the soil when they decay.
- Organisms can increase the weathering in the area



# 5.2 Soil Formation

## 5. Slope

- Angle
  - Steep slopes often have poorly developed soils.
  - Optimum slope is a flat-to-gentle slope upland surface.

**Figure 13 Slope and Soil Thickness**  
**A** Little or no soil develops on steep slopes. **B** Flat areas often have very thick soil.

