

# Soils Key Topics/Learning objectives

## Key Topics

1. Geomorphology - Understand geomorphology and how geomorphic processes created present landforms and landscapes. Relate these landforms and landscapes to soil formation, soil physical and chemical characteristics.
2. Understand how soil forming factors affect soil development and type of soil that would be present on a given landscape (hill, terrace, ridge, slope, etc.).
3. Understand basic physical properties of soils, soil texture, particle size distribution and how they affect fertility, water movement, available water holding capability, and chemical properties of soils.
4. Map Reading and Interpretation - Understand and use topographic and soil maps to gather information.
5. Understand Soil Erosion and management practices to control erosion.
6. Learn use of soil survey publications to find field locations and determine types of soils.
7. Hands-On: Identify & describe the different soil horizons in the soil pit.

## Learning Objectives

1. To learn the importance of geology, geomorphology, and hydrogeology in natural resource studies and management planning.
2. Help students understand the connections between environmental physical characteristics with biological and sociological characteristics. Why industries are located where they are, and why are farms located where they are, understanding that soil type plays a critical role in agricultural production.
3. Learn basic geological and soil identification methods so that field site characterization can be performed at a variety of sites.
4. Learn to determine site characteristics from maps, soil surveys and other methods common to geology and soil science.
5. Understanding best management practices and learn to identify practices which are most compatible with specific soils.
6. To broaden awareness of the human demands on physical resources and land use demands with regard to best suitable uses.

## Basic Skills

1. Soil Texturing and soil structure characterization
2. Identification & delineation of major soil horizons

3. Determine land slope (percent) & aspect (ordinal compass directions) using a clinometer, compass, or similar instruments.
4. Basic plant identification of key plants associated with major land types and ecological sites.
5. General map reading skills on aerial photography and USGS topographic maps to delineate land forms, contours, slope, aspect, floodplains, etc