

## Field Soil Geomorphology

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### Instructor Notes

In this activity students collect information on soil properties in the field and construct a geologic history from this information. For our campus, I have selected three sites in a transect (line). The soil at each location, the soil and its properties are distinctly different. I have used this activity in both my Soil Pedology and Geomorphology courses. For my soils course, I have students complete a more detailed description. However, most students in my geomorphology course have limited soils background so I only have them identify the major horizons, textural class, and color. Students are divided into groups, with each group in charge of becoming an expert at their particular site.

#### *Site #1:*

Landscape- relatively flat surface elevated above river

Soil- texture of the soil is sandy throughout

Geomorphic landform/interpretation- Pleistocene stream terrace with glacial outwash sediments from most recent

#### *Site #2:*

Landscape- steep slope

Soil- surface of soil is sandy; lower horizons are clay-rich with fragments of partially weathered dolostone

Geomorphic landform/interpretation- upland/stream valley walls with bedrock close to surface; carved from lateral migration of stream during pre-Pleistocene times

#### *Site #3:*

Landscape- flat slope

Soil- surface of soil is sandy; lower horizons are predominantly varved silt and clay

Geomorphic landform/interpretation- modern stream terrace; filled with lacustrine deposits during Pre-Illinoian glaciation

### Application Ideas

This activity could be applied to any setting. From my perspective, I think it works best in areas where there is some diversity/differences between sites along a transect. If you are unfamiliar with soil descriptions, I would recommend consulting a county-level soil

survey or the Natural Resources Conservation Service's Field Book for Describing and Sampling Soils (available at: <http://soils.usda.gov/technical/fieldbook/>) . I also recommend having students synthesis their findings into a cross-section and/or respond to interpretation questions.