

**Accompanying Worksheet:** Soil Site Selection (W-S-01)

**Objective:** Students will choose their site for future soil analysis protocols and activities. They will learn what affects soil properties, and will also apply skills such as orienteering and simple geometry.

**Considerations:**

1. **Is this site safe for digging?** Is there the potential for buried cables or power lines? Check with local utility companies or park staff to ensure that digging will not disturb anything.
2. You will want to sample a **typical** site. I.e, one that looks like the rest of the landscape.
3. The site should be **relatively undisturbed**; choose an area that is at least 3 meters from a road, trail, or playing field.
4. You will want a site that it is **illuminated by the sun** at the time you are taking samples. This allows for better pictures and better visual observations of soil characteristics. If the entire area is in the shade, you will need to take samples into the sun to observe color, composition, etc.
5. In following activities, it is generally necessary for students to dig a fair ways straight down into the soil. If, however, your site is located in an area where digging deep may be problematic (such as a location where soil is dry, hard, or rocky), we suggest finding a nearby natural or artificial cutaway such as a streambed or roadside ditch, where students can simply scrape away the outer layer of soil and reveal the horizons without digging vertically.

**Required Materials:**

\_\_\_ Worksheet S-01

\_\_\_ trowels

\_\_\_ rulers or other measuring devices,

\_\_\_ clinometer (see protocol "Clinometer Use" for instructions on making and using homemade clinometers)

\_\_\_ compass

**Optional Materials:** GPS/GIS system for determining latitude and longitude or access to Google Earth

**Exposing the soil:**

Students should use trowels or small shovels to dig at least 10 cm below the surface. If they are able, students can dig up to 1 meter.

## Defining the Site:

1. Latitude, longitude and elevation: if your school has access to a GPS (even most car units can determine latitude and longitude), use it to record these factors. If you do not, students can use Google earth (a free software available at [earth.google.com/](http://earth.google.com/)) to locate the site.
2. Exposure method: how did you expose the soil? If you used trowels, record "Near Surface Method." For other exposure methods, consult the referenced Globe.gov document.
3. Slope: record the angle at which the land varies from the horizontal. This can be measured using a clinometer.
4. Aspect: Which way is the site facing? The aspect is the compass direction of the steepest slope across the exposed soil site. This gives information about how the sunlight affects the soil properties.
5. Landscape: where is the site on the slope? Is it on the top of a hill, where it will have been most affected by erosion, or on the bottom of the slope where it will have been affected by soil deposition? Perhaps somewhere in the middle, or maybe the landscape is completely flat.
6. Cover: what was on the surface of the soil? Was there vegetation cover, and if so, what kind? Soil can be described as being covered by rocks, gravel, shrubs, leaf litter, etc.
7. Parent Material: where did the soil come from? Has it been formed by the wearing down of rocks in the area?
8. Land Use: this can be defined as urban, agricultural, recreational, wilderness or *other*.