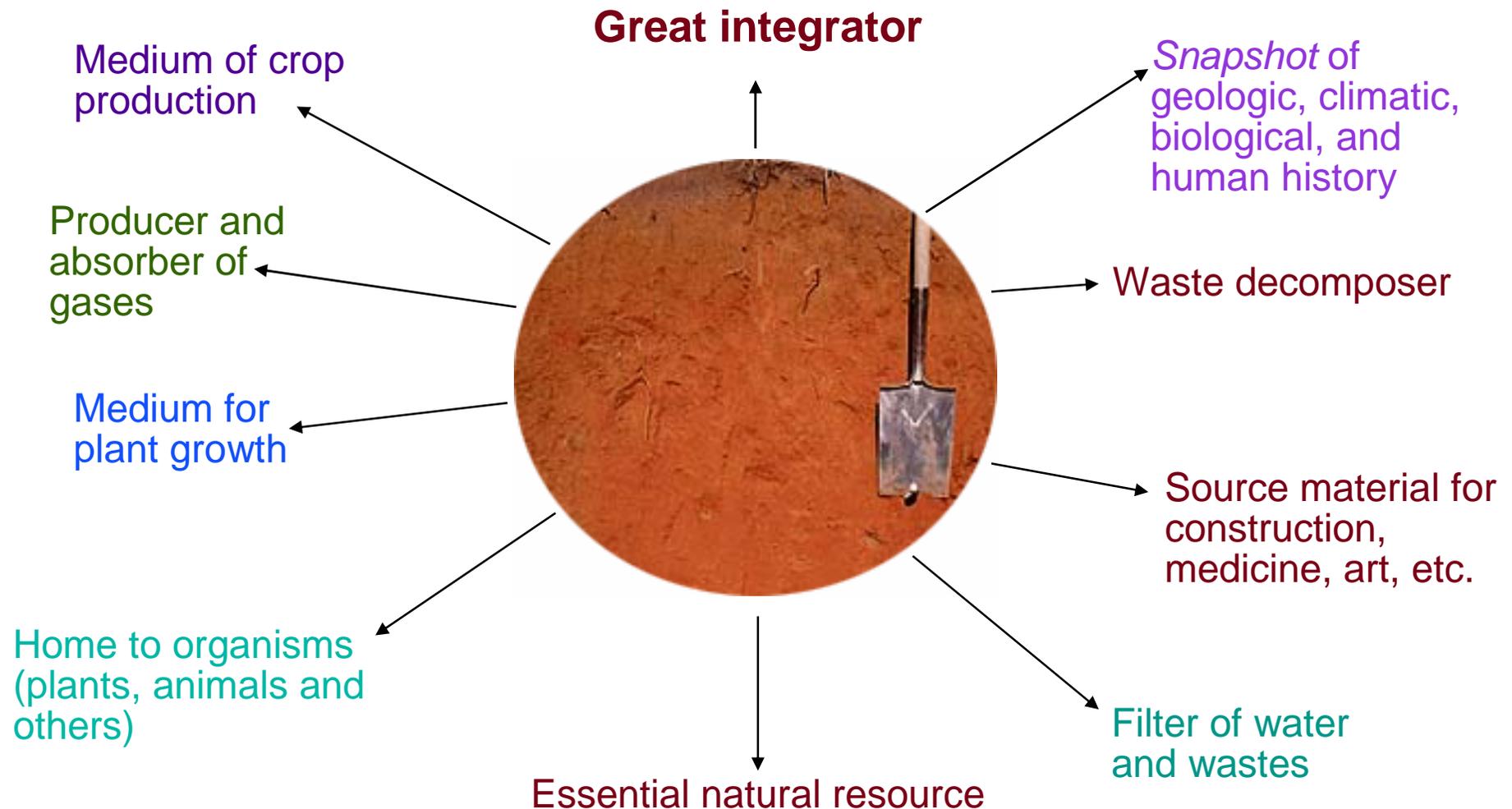


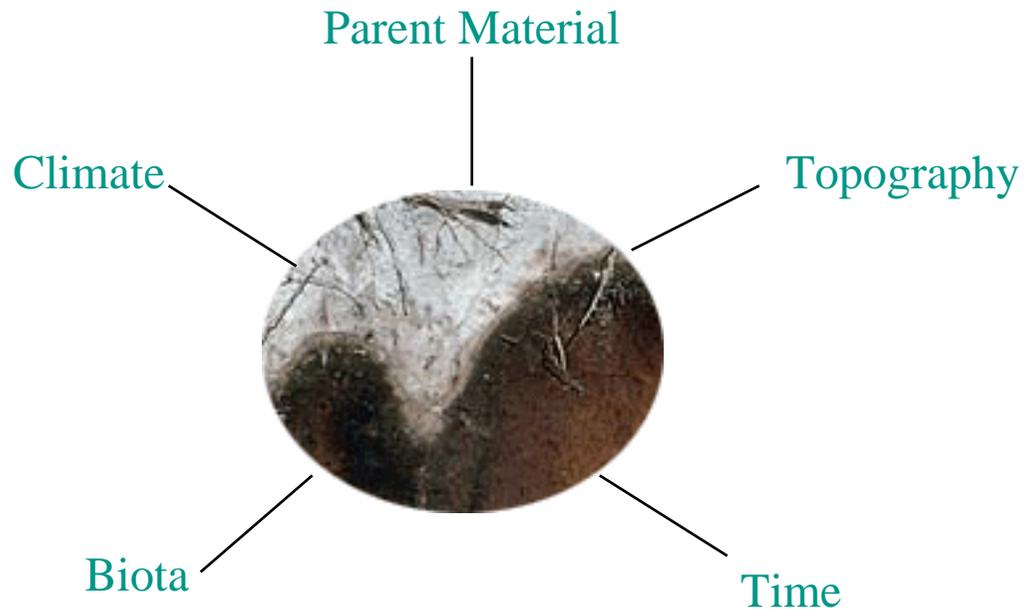
We Study Soil Because It's A(n)



African Mud Cloth



Soil Forming Factors



These five factors work together to create a unique soil profile made of layers called horizons.

For GLOBE Soil Characterization, we will describe, sample and analyze the soils from horizons of different soil profiles.



Forest soil from Florida, USA

Soil Characterization

For this protocol, we will

- 1, dig a pit or hole
- 2, describe
- 3, sample
- 4, analyze the soils from horizons of different profiles.

Sample at least *two* sites

1. near the Soil Moisture study site
2. within the Biology study site



Field measurements are done once at each site

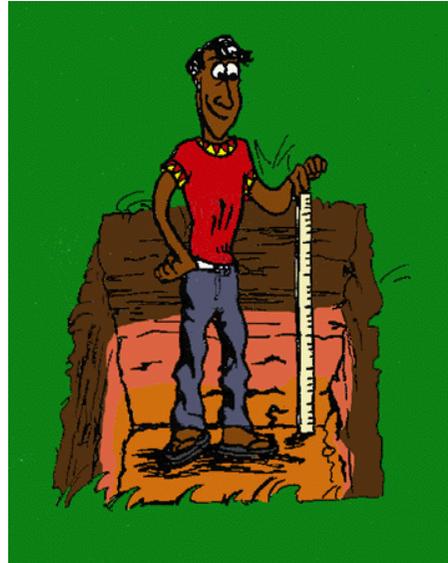
Three replicate samples from each horizon are taken and reported one time for each site.



Characterization and Sampling Options

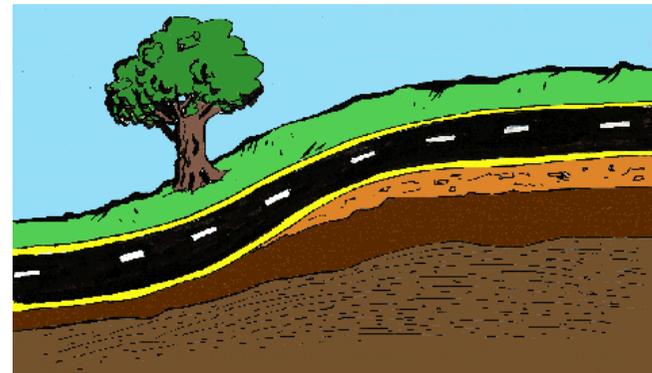
Soil Pit

Dig a soil pit at least 1 meter deep and as big around as is necessary to easily observe all of the soil horizons from the bottom to the top of the pit.



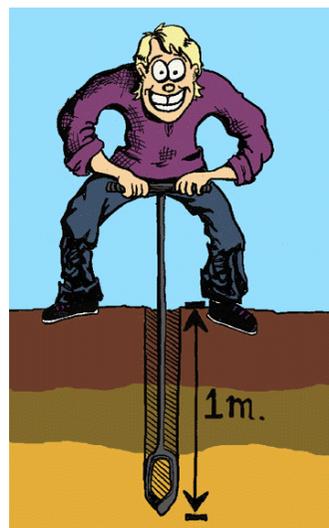
Exposed Profile (road cut)

Use a road cut, excavation site, or other location where the top 1 meter of soil has been exposed.



Auger

Use an auger to remove soil samples to a depth of 1 meter.



Surface Sample

Use a garden trowel or shovel to sample only the top 10 cm of soil, if digging to a depth of 1 meter is not possible.



Instruments for Field Analysis:



Instruments for digging the pit or hole
and conducting initial horizon identification

Digging pit or hole

Shovel or Auger
Trowels

Laying out profile

Plastic Tarp or Trash Bag

Marking horizons

Nails, Golf Tees, or other tool for
marking horizon boundary marker

Measuring depth of profile

Meter Stick

Moistening profile face

Squirt bottles

General use

Paper Towels

Instruments for Field Analysis:



Instruments for conducting Bulk Density and field protocols

Soil sampling for lab protocols

4 Liter (1 Gallon) size
Ziplock Bags or Containers

Soil color

Soil Color Book

Bulk Density

Sampling Cans
Wood Block and Hammer

Free Carbonate test

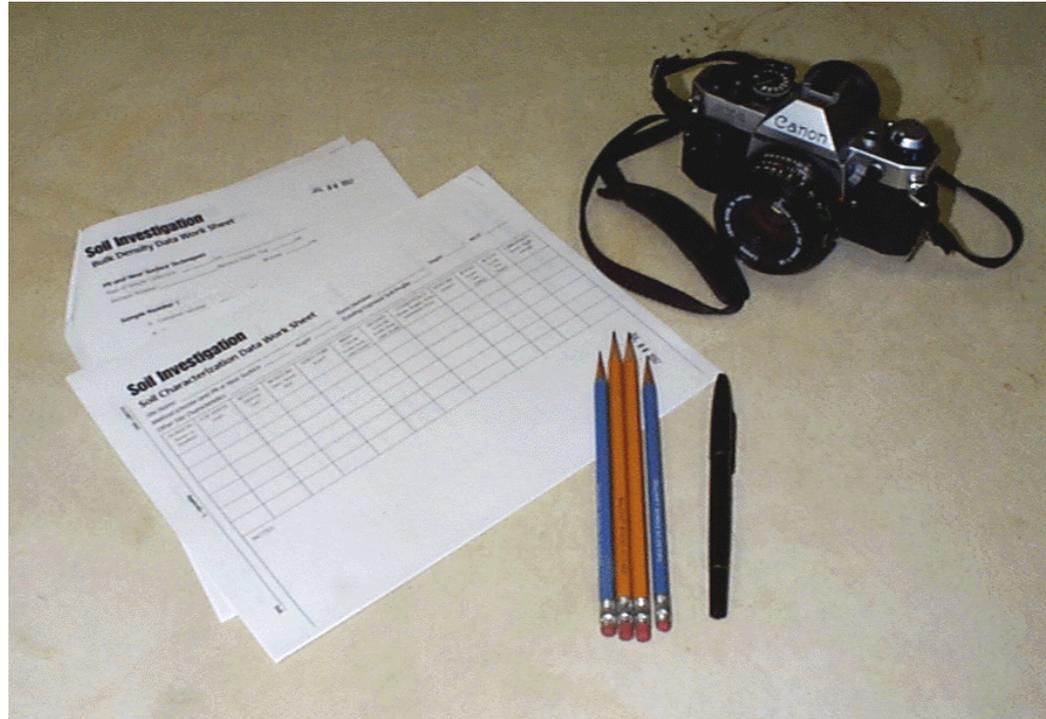
Vinegar in acid bottle

Study site slope

Clinometer

(You may use the clinometer
that you made for the Land
cover/Biology protocol.)

Instruments for Field Analysis:



Instruments for recording data about soil profile

Field protocol information

Soil Characterization Information Sheet

Soil Profile photograph

Camera

Data recording

Soil Characterization and Bulk Density Data Entry Sheets
Water Proof Marker and Pencils

Preparing for the Field



1. Fill acid bottle with vinegar
2. Fill squirt bottles with water
3. Make a clinometer (see Land Cover/Biology Protocol)
4. Collect bulk density containers
 - a. find can mass
 - b. find can volume by filling the can with water, pouring the water into a graduated cylinder, and reading the amount in mL.
 - c. label cans
 - d. hammer hole in bottom

Note: If using the auger sampling method, take bulk density samples at the surface of the soil as per the Bulk Density protocol for the Surface Sample technique.