

Soil study:

"What is the relationship between..."

Something about soil and something about another thing.

OUR GOAL:

<u>Location</u>	Something about soil	Something about another thing
Behind Fwing	#	~~~
site 1	#	~~~
Ash Swale A	#	~~~
Ash Swale B	#	~~~

~~What is the relationship between soil
and temperature?~~

WITRB moisture or texture number types
something about soil organisms soil and temperature
measuring word factor 1 measuring word
of air factor 2 ?

TODAY

① Come up with one good WITRB about soil

- Follow the format (measurement for soil & measurement for another factor)
- There has to be a realistic interaction
- You have to be able to easily make the measurements

② Research

- Your soil measurement *(what is significant
what do we know)*
- Your second factor/measurement *know*
- Look up your WITRB question

how?

SUBMIT AS REVISED PROPOSAL
BY 2:45

We need lots of data!

- ① More data means a more meaningful trend
- ② It helps identify bad data (outliers)

We need lots of locations!

- ① We need data
- ② We need variety

As a class:

WITRB moisture of soil and
number of soil organisms?

① How are we going to do this?

NITRB:
(What is the
pattern we see?)

loc	Soil moisture	# Soil organisms

We'll develop a protocol.

Our goal: with our protocol (a step-by-step list of instructions), anyone who collected data at one of our sites would get the same numbers/data.

Soil moisture:

- Identify sites properly
- Come up with a target depth for our samples
- Lots of locations
- Collect all samples in one period
- Define location categories
- Review methods

Number of soil organisms:

- Amount of soil to collect
- Remove extra materials like leaves, bark, etc.
- Which organisms will we count?
- Do we count types, numbers, or both?
- We need to review technique

both?

- Work in pairs
- Separate from other pairs
- Look for a variety of likely moisture levels (\nparallel Variety of organisms)
- Stick to natural looking areas
- Make sure the site is OK to dig
- Draw a map that clearly identifies 5 different spots \nparallel why each site is worth looking at

Protocol for soil moisture measurements:

- ① Scrape away surface material
- ② Collect about 1 cup of soil from between 0-3" below the surface
- ③ Remove non-soil materials from the sample
- ④ Place sample in a labeled bag
 - Names or initials
 - "Soil moisture"
 - Location

- A ⑤ Find & record mass, empty petri dish
of
- B ⑥ Put soil in petri dish - find & record mass
again
- ⑦ Label petri dish with initials, location,
and masses you just found
- ⑧ Dry in oven @ 40°C for 48 hours
- C ⑨ Find & record mass again
- ⑩ Soil water content = $\frac{(B - C)}{(C - A)} \times 100\%$
- How many grams of water
you would have for every
100g of dry soil

Protocol for soil organisms:

- ① Scrape away surface material
- ② Collect about 1 cup of soil from between 0-3" below the surface
- ③ Remove non-soil materials from the sample
- ④ Place sample in a labeled bag
 - Names or initials
 - "Soil organisms"
 - Location

- ⑤ Put soil in strainer and place over a funnel.
Put a beaker ~25% full of water under
the funnel. Attach funnel/strainer to a ring
stand & attach light bulb just above soil.
- ⑥ Label ring stand with initials & location
- ⑦ Let sit for 48 hours
- ⑧ Count organisms & complete a data table:

LOCATION	
type	count
Springtails	
nematodes	
thrips	
protozoa	
Mites	
annelids	
centipedes	
millipedes	
Other	

Gather materials, label, & otherwise set up:

{ BAGS (6)
PETRI DISHES (3)
ORGANISM EXTRACTION TOWERS (3)

→ Label! Initials & locations & organisms/
moisture

FOR 3 LOCATIONS

Today :

① Collect data for all three sites

- Measure mass of your moisture samples
- Calculate soil water content
- Collect soil organisms data

② Clean up

③ Study guide(test)

For each location:

A	B	C	%	type	count	NAMES: _____
(mass of petri dish)	(mass of dish with wt soil)	(mass of dish with dry soil)	$\frac{(B-C)}{(C-A)} \times 100$	Springtails nematodes thrips Protozoa mites annelids centipedes millipedes Other		location: _____