17 August 2015

CanU Grade 8 module

Meeting with Soil Science Graduate Students

The overall theme for the Grade 8 CanU offering from Agricultural and Food Sciences is a model food, pizza. Soil Science is part of Module 2 (Oct 15 and 22 from 5:00 to 7:30 with 20 Grade 8 students each week).

For Soil Science, the idea was put forth to have the students do some investigation of different soils and rate (or score) a number of properties on each soil for its ability to supply nutrients for pizza. Then have a summation at the end.

General Outline

i) Introduction (all students)

ii) Create 4 groups of 5 students each, give each a scorecard

iii) Groups rotate through each station in the Junior Soils Lab, score the soils

iv) All students go to equipment shed for the soil-runoff station

v) Return to Ellis Building

vi) Sum up the points for each soil

vii) Sticky note feedback

Ideas for Junior Soils Lab stations

1. Soil Physical Properties

- hand texture

- soil moisture columns

- soil monoliths for horizons

- HCl for carbonates

- soil color (or should this be in #4?)

- soil structure?

2. Nutrient Station

- nutrient requirement for the pizza

- bottles of different nutrient sources (urea, etc.)

- soil test of available nutrients

- atomic models of the nutrient sources showing the individual nutrient elements

3. pH/Salinity

- use a pH meter and a conductivity meter to measure these properties

- use pH and salinity to rate the soil productivity

4. Soil Ecology

- microbial rating?

- organic matter from soil color

- microscope for harmful nematodes

- plates of different microbes emphasizing different functions (harmful versus helpful)

5. Technology in Soil Science

- various dielectric probes for soil moisture

- thermocouples for temperature (they can make and use their own thermocouple)

- IR thermometer

Grad Students by station

1. Geethani, Theresa, Mayowa

2. Inoka, Ike

3. Rumi, Ahmed

4. Abolfazl, Megan

5. Timi, Ashley, Mike, Justice

Everyone else – will be Grade 8 test subjects for a practice session the evening of October 8

Next steps

The above are just suggestions and ideas. Each group to meet and determine the details of the individual station. What will the kids do at the station? How will they rate each soil? Estimate about 20 minutes per station

Each group to consult with Rob Ellis about available equipment and logistics in the Junior Soils Lab. Paul will schedule a follow-up meeting in early September.

Another thought

Since Station 5 is more about technology and less about rating specific soils, it may be possible to have the kids rotate through the first 4 stations, then come together as one large group in the lab to “test out technology”. They could make a thermocouple, try using some different probes. Perhaps this could happen when they return to the Junior Soils Lab after going to the shed.