Harvard LTER Schoolyard Program

Teacher Developed Lessons and Documents that integrate Harvard Forest Schoolyard Ecology Themes into curriculum.

- Lesson Title:

  Integrating *Our Changing Forests* into the High School Curriculum

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- School: Oakmont High School

- Level: High School

- Date: April 3, 2014

Integrating Our Changing Forests into the High School Curriculum

Nick Kostich

About me

- 2nd year teacher at Oakmont Regional High School
- Currently teach Freshman Biology and Sophomore Chemistry
- First time running a long term research project.

First run

- Overall went well, a few minor changes for next time
  - Increased pre-lab practice time so students are well versed in the procedure
  - Add a second plot at each site so students can be more spread out.
  - Continue to expand field guide as different trees are located in the second site this spring.

Current Ecology Curriculum

- For Freshmen, Ecology is taught as a unit in Biology
  - Not available as its own course until Junior and Senior year
- Current focus is on amphibians as bio indicators and relates them to the other topics.
- Work through lab simulations to accomplish many other learning objectives. (food webs, water systems, nutrient cycles)

Concerns

- Once the unit is over no other topics relate to amphibians.
- Only two real field experiences
  - Observational lab where we practice filling out lab sheets and examining the environment.
  - Leaf Pack lab where we gather and record specimens from a nearby pond.
- Lack of graphing skills practice which shows itself in and after they finish Biology.

Objectives

- Use Our Changing Forests in addition to current field experiences or replacing the lab sheet examination.

- Use data to increase amount of graphing and data assessment practice freshmen receive so they can **identify** and graph important data.

- As the study reaches four years begin incorporating more complex graphing and data gathering/assessment into the higher level classes.
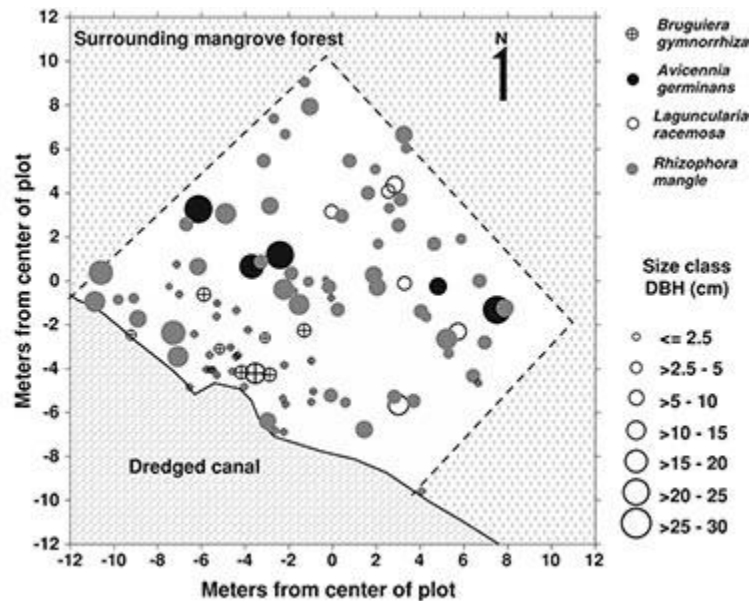
Freshman Skills

- What data is important data and why?
- Work on Bar and Line graphs
  - When to use each
  - Why would we use them
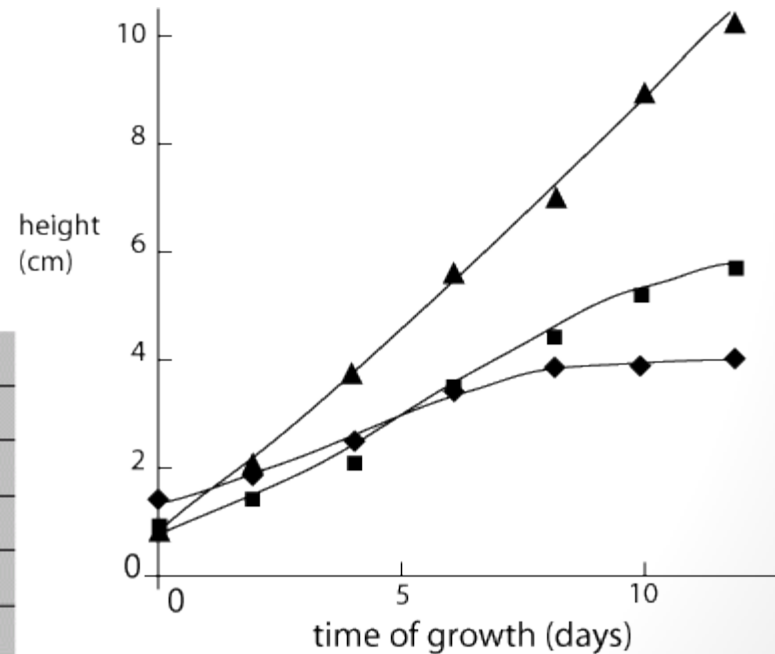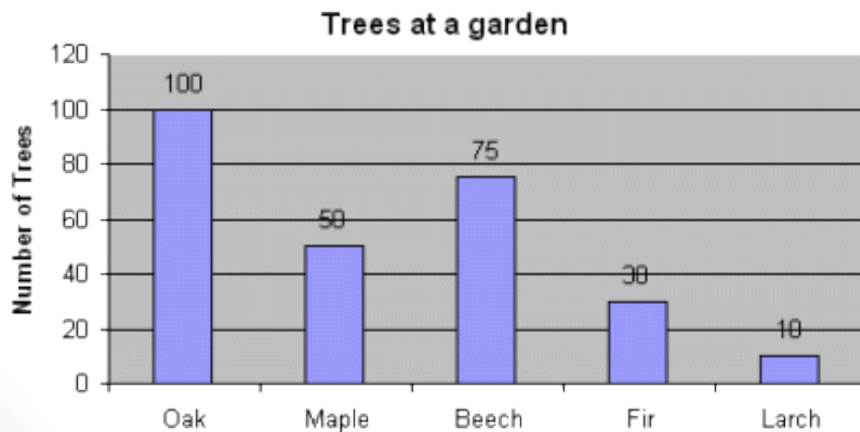
Junior/Senior Skills

- Working with large data sets.
  - Including both graphing large data sets, and sorting large data sets to gather specific data
  - Ability to plot and calculate total area taken by trees at DBH.

Junior/Senior skills cont.

- Increase the amount of data captured by teaching how to calculate height, canopy cover, biomass, etc.
- Work on comparing and contrasting different plots to try and identify meaningful differences in data.