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
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Integrating Our Changing Forests into the High School Curriculum

Nick Kostich
About me

• 2\textsuperscript{nd} 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.