Effective Communication Skills-Fall 2014 Ilia Donner
Assignment: Draft Outline of Lesson Plan 9/02/2014

Title: If a Tree Grows, Will "Yew" Know?
Level: Middle School or Early High School, Life Science
Time: 50 -70 minutes
Goal/SOL: BIO.1 [a,b,c,e] The student will plan and conduct an investigation.

I. INTRODUCTION (5 minutes)
   a. My name, my university, my major, and my hometown
   b. What is PINEMAP?
      i. "Scientists come from areas like biology, modeling, genetics, economics, policy, education and outreach and all of these scientists are working together. I am here today as part of the education program, and this past summer I worked as a researcher in the silviculture area at Virginia Tech"
      ii. PINEMAP's overall goal is to enable southern pine landowners to produce and manage Loblolly pine (Pinus taeda) in a sustainable and more productive way.
   c. PINEMAP undergraduate fellow experience (What did I do this summer?)
   d. Today's objective (SOL: BIO.1 [a,b,c,e])

II. FORESTS IN A SCIENTIFIC CONTEXT (35-55 minutes)
   a. Scientific method
      i. Example of scientific method (daily problem solving)
      ii. So what is it?
      iii. Why do people utilize it?
      iv. What good does it do for others?
      v. How is it accomplished?
   b. Hypothesis vs. Theory
      i. Intro to tree ring growth and diameter (productivity)
         1. Why is this relevant to daily life?
      ii. Establish hypothesis
         1. Fertilized trees grow faster than unfertilized trees
      iii. Field Exercise (Observation!)
         1. Measure tree diameters outside (weather permitting)
         2. Or measure tree diameters and rings of a tree cookie (inside)
         3. (Optional: Core a tree)
   c. Variables
      i. What are we measuring? (Definition of a variable)
      ii. Independent or dependent variables?
      iii. X vs. Y?
   d. Plotting (optional)
      i. Plot diameters vs. tree rings counts
      ii. Or plot diameters vs. heights
   e. Results
      i. How does our hypothesis relate to the results?

ii. How does our conclusion help managers solve real world problems?
iii. What else can we measure? Any future observations that would help others understand tree growth?

III. CONCLUSION (10 minutes)
a. Review Key Points
b. How is the observation made today relevant to you?
i. My answer: Today's observation is extremely relevant to daily life because tree growth and productivity are essential components to the forestry field because it dictates how much fiber will be produced in a given amount of time.
ii. If more fiber is produced in a shorter time frame, more goods (paper, cardboard, tissue, etc) will be available at cheaper prices. Therefore, it will also require less space to grow the same amount of trees, which can help preserve more forested land.
c. Whip Around Game (Optional)
i. Pass a ball around and instruct the handler to tell everyone what they learned, a thought about the process, or a question they may still have about the lesson.
d. Final Thoughts and Goodbye