Diving into Long Term Ecological Research

Summary

This project will introduce students to the Long Term Ecological Sites (LTER) <https://lternet.edu>. This project is very open ended, so teachers can allocate as much class time as their students need. After exploring the various sites during a class period, students will choose a specific site and create a research question to explore based on the data available at that site. During one or more class periods, students will download data sets from their site and create graphs to help test their hypothesis. The final product will be a scientific poster that students will share with their peers. The teacher can decide how much class time to allocate to poster creation and presentation. The poster will include their research, as well as its connection to the global ecology. It is estimated that this project will take at least a week to complete. This project could be implemented as part of an ecology unit as a means for students to demonstrate their understanding of the interactions bewteen biotic and abiotic factors in ecosystems. It could also be implemented at the end of the school year as a means for students to demonstrate the science practices they have learned through out the year.

Key Concepts

* Asking questions and defining problems
* Analyzing and interpreting data
* Engaging in argument from evidence
* Evaluating and communicating information
* NGSS LS2.A, LS2.B, LS2.D, LS4.D, ESS3.C, ESS3.D

Objectives

* Students will ***observe*** and ***analyze*** real-world data collected at a Long Term Ecological Research Site (LTER)
* Students will ***form*** a research question and hypothesis
* Students will ***create*** graphs of ecological data to support or refute their hypothesis
* Students will ***communicate*** their finding by creating and presenting a scientific poster

Materials

* Computers with Internet and Printer Access
* Student Activity Sheet
* Poster Board

Procedure

1. Introduce students to the Long Term Ecological Research Network <https://lternet.edu/>
2. Hand out the student activity sheet and product descriptor.
3. Allow students time to explore the various sites and the data sets.
4. Groups will choose a site and a research question and get approval from the teacher before beginning their research.
5. Students will download data that helps them to answer their research question.
6. Students will create graphs analyzing their data.
7. After checking with the teacher, students will create a scientific poster to share their finding with the class.
8. Student groups can present their individual posters to the class or a gallery walk can be set up where students discuss their posters with their peers who are circulating around the classroom.

Assessment

* **Performance—**Students will present their poster to their peers.
* **Product—**Scientific Poster-see attached product descriptor

Additional Resources

Information and Templates for Scientific Posters

<http://www.dartmouth.edu/~ugar/undergrad/posterinstructions.html>

<http://guides.nyu.edu/posters>

<http://www.craftofscientificposters.com>