Joanie Henderson
Authentic Data Integration Assignment
STEM-Methods Secondary, Fall 2020

1. Select a data source on which to focus this assignment. Your instructors provide many examples in the live sessions, discussions and resource page for this course. You may use one that you find outside this course as well.

2. Components of the assignment:
   a) **Data source:** provide a title for the data and the SPECIFIC link for access.
   b) **Lesson Enhancement:** Describe how the data enhances a topic that you currently teach or plan to teach.
   Include a 1 paragraph statement about your personal feelings regarding using data.
   c) **Interdisciplinary context**: How can the data be used to create interdisciplinary lessons, discussions or activities in your classroom. How can you connect to multiple content areas?

The data source I have chosen is NASA's Globe Zika Education and Prevention program, https://www.globe.gov/web/globe-mosquito-project. These data can be sorted and visualized using the Globe Visualization System found at https://vis.globe.gov/GLOBE/# Specifically, I'm using data located in the "Hydrosphere" protocol layer labeled as, "Mosquito Habitat Mapper".

The NASA Globe Zika Education and Prevention program uses a smart phone application called, the *Mosquito Habitat Mapper*. The purpose of the app is to aid in identifying potential breeding sites for mosquitoes, and sampling and counting mosquito larvae. It also allows the users to employ optional equipment to examine, photograph and identify the genus of the collected specimens. Through use of this smart phone app and the data collected, students will be enabling scientists to verify predictive models of mosquito population dynamics. Public health authorities can also use the observations to inform where, when, and how to intervene in specific communities to reduce disease risk.
https://observer.globe.gov/about/get-the-app

My personal feelings regarding the use of data are quite simple—it is imperative to understanding the basis of any scientific discipline. Students need to understand why we collect data, how we collect data, its manipulation and display within visualization software. Without this basic understanding where would we be with scientific inquiry? One could liken it to trying to spell words without letters. Just as letters provide record to the spoken word, so too does data to scientific inquiry. Students becoming familiar with and indeed comfortable with data, is absolutely necessary in order for them to be critical consumers of the floods of information we are blasted with and the thorough evaluation of the decision making process data can provoke. Students need opportunities to experience data first hand.

In continuation of my belief in hands-on learning of data, I find the Mosquito Habitat Mapper to be an excellent tool for our Life Science class. There are multiple points that allow students to apply their current knowledge as well as ask new questions on their own. Specifically, I plan to use this tool after we have completed our lessons covering insects and their life cycles (including mosquitoes complete metamorphosis), and habitats and ecosystems. There is a lack in our current curriculum of exploring human interactions with our environment and social justice/ethics issues. I find this lesson to be a wonderful extension of their recent learning as well as leading them into local issues of environmental/ health concerns. Our local environment and local vector control agency offer many opportunities for our students to explore these important issues right here in our backyards. Many of our community

members and indeed family members of our students, work in agriculture potentially exposing them to the diseases mosquitoes carry and the chemicals used to control them. According to the Lake County Vector Control District, there are "twenty-four mosquito species in six genera occurring in Lake County. Each mosquito has its own preferred larval habitat, season, and blood meal hosts." http://lcvcd.org/vectors-diseases/

A video demonstrating the use of the Mosquito Habitat Mapper app can be found at: https://youtu.be/ENoalx26LIk The app provides students a hands-on opportunity to investigate the outdoors for potential mosquito habitats (our school garden), plot locations using the mapping feature of the app (our students need extra support in using maps), identify and record the presence of larva and utilize sampling protocols. The app can also be used to identify the genus of the larva. Through the use of the app to record these data the students also gain experience with technology located right in their hands—their phones! These data are then uploaded to the program's Globe Visualization System. From there students can see and manipulate their data along side other data—pretty cool!

The next step I am working on is securing a speaker from our vector control agency to explain local decision-making of control efforts and the chemicals used. Apparently, these folks are adverse to speaking in front of a junior high class. I wonder why? :) I am excited to see how additional local data from our students could aid vector control's efforts for a more targeted use of control measures. My students will go nuts seeing their data used to help our community!