Data Integration

Sarah Justis

Endeavor

Dr. Karen Woodruff

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Data incorporation is an important part of every classroom. Through incorporating data students can make real world connections, which can also increase engagement and encourage students to take ownership over their learning. Incorporating data in the classroom is a key part of STEM integration. Not only can the data be related to STEM related careers but it helps bridge the gap between STEM content areas.

The current unit that my students are working on is learned versus innate behaviors. Within this unit students are looking at the effects of cellphones on human learned behaviors. Students are also making connections between cellphones addictions and Pavlov's studies. During this unit students are required to record their daily phone usage and analyze Percentage of People Using Social Media. This website offers multiple different sets of data, one of the data sets is how often Americans are on social media sites. Students will compare these numbers to their daily phone usage data. Through having students review data that affects their everyday lives, makes this unit highly engaging and incorporates real world application. Also through using something that interests students, helps with getting them to buy into the unit that you are wanting them to learn. Phones are a very important part of everyday lives for teenage students, through allowing them to work with this subject and collect their own data, they take ownership for their learning.

Usually when I teach the learned versus innate behaviors we discuss why penguins huddle. This is a very interesting topic that ties into ecosystems. However, my students find it difficult to understand how this fits into their everyday lives in Edmonson County Kentucky. To quote one of my students “we don’t live near penguins and if it gets cold we can just go inside”. Because my students were finding it difficult to relate to the Why DO Penguins Huddle? unit, this year I wanted to tie this unit to something that students could relate to and interact with

outside of class. Through changing the connection in my unit to smartphone addictions this allowed me to also cover some of the science engineering design objectives. While working through the unit students are required to engineer a safe app that would help with smartphone addictions, similar to some of the safe driving apps. Through creating this app students have to define criteria and constraints, evaluate designs (through researching apps that are already available), analyze data for the website listed above, as well as the data they gathered from their own phone use, and develop, test, and modify a model their app. Also through looking at the increased uses for phones through social media, there are new studies out about cell phone use and certain types of cancer, which ties into genetic mutation objectives. This data can also be linked to nervous system objectives when discussing how the brain plays a key role in addictions.

The Smartphone addictions unit and the social media data and cell phone data has multiple connections in science standards, but it also has multiple connections to other STEM standards. This data covers some of the technology standards through having students create their own app they have to learn python, algorithms, and syntax. Also, by looking at how the numbers of social media users have changed over time, they are able to identify and discuss changes in technology over time as well as how technology has changed cultural practices. Moreover, because this data set can be viewed as either a graph or numbers set collected over time students can work on reading and analyzing graphs or graph creation, depending on what they are learning in their math class. Students can also break the data up into mean median and mode to see what the central tendencies are within the numbers.

Through changing my learned versus innate behavior unit to incorporate data from cell phone use and social media use I am better able to engage my students in this lesson. This data

set allows me to make connections to several standards and objects within my own content area, while also helping to incorporate other STEM subjects within my classroom. Most importantly students are able to identify how this subject applies to them as individuals, increasing their interest, engagement, and ownership of the Learned versus Innate Behavior unit.