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Methods of STEM-Secondary

Engaging Context Data Integration Assignment

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Graphing Sea Level Trends

Specific Link: <https://www.jpl.nasa.gov/edu/teach/activity/graphing-sea-level-trends/>

How does the data enhance your topic/lesson/unit? What new objectives can you address? How does it change the teaching/learning?

The lesson that I am teaching is how weather and climate change on Earth. Since the Earth is 75% water, it plays a crucial role in weather and climate patterns. Collecting sea level data will open the door for my students to understand the changes occurring on Earth. This data will also help my students understand our local weather patterns. It will help them understand why Utah receives such large quantities of the “greatest snow on earth” This is due to the Lake Effect phenomena from the Great Salt Lake. The objectives we can address are: How can we preserve our waterways to help feed the Great Salt Lake in order for the Lake Effect to continue dumping “perfect” snow? How can we preserve our Oceans and ice sheets to maintain an equilibrium in our weather and climate patterns?” Collecting real data changes teaching and learning from a passive learner to a proactive, problem solving scientist. I also think it makes me more interested in the topic, as well, because I can see real results from data and share my curiosity and enthusiasm with my students.

What is your opinion about using data in the classroom, either collected by student-observation or from another source?

As a science teacher, data is the framework for evidence and scientific inquiry. Since my goal is to prepare students to think like a scientist, it is important for them to collect data. It also important to teach them how to interpret data. For example, we are learning about weather and climate. They need to learn how to interpret a barometric graph and wind speed graph to understand cold and warm fronts. The only way for them to do this is to gather data or interpret data collected by our local university.

What is your rationale for the use of the data source? Clearly explain how the data can be used to integrate across STEM content areas.

I used this data lesson plan because the ocean is one of the main driving forces for life. I wanted my students to understand that the ocean, weather and climate change. I also wanted to discuss how humans could potentially influences these changes for positive or negative. I also mentioned previously, that the Great Salt Lake affects our local weather patterns. We can use this data across STEM content areas by discussing ecosystems affected by oceans, calculate the trends and correlate them to perhaps engineer ways that we can protect our oceans

How can the use of this data help to integrate across STEM content and/or pedagogy?

This data integration lesson plan is excellent for integration in STEM. For example, this would be a great segway to discuss the Ocean Cleanup Project which is a giant floating trash collector that attempted to reduce the pacific garbage patch. However, the engineering failed prematurely. This data integration lesson about ocean trends would be excellent way to introduce students to engineering better ways to reduce the garbage patch in the Pacific Ocean.

