

1) Date Source: IRIS Earthquake Browser <https://ds.iris.edu/ieb/index.html?format=text&nodata=404&starttime=1970-01-01&endtime=2025-01-01&minmag=0&maxmag=10&mindepth=0&maxdepth=900&orderby=time-desc&src=usgs&limit=1000&maxlat=87.02&minlat=-87.02&maxlon=180.00&minlon=-180.00&zm=2&mt=ter>

2) Lesson Enhancement

The IRIS website has a compilation of various different data on earthquakes as they occur worldwide. The site provides real time and archived earthquakes, their magnitudes, and their locations on a map. It can also show the three dimensional view of the depth of any selected earthquake. The views for the map are satellite or traditional map view. The purpose of me incorporating this website into my earthquake unit is to enhance my students learning and understanding about earthquakes including: their frequency, magnitude, location, depth, and provide a three-dimensional perspective about what happens under the surface of an earthquake as it is occurring.

I believe that this website will enhance my teaching about where earthquakes occur because my students will be able to look at and make connections to the patterns on the IRIS site and locations on a map. After making the connection to the locations and landforms on the satellite image of the map, they will be able to specifically connect the placement of earthquake occurrence and frequency to the major plate boundaries on a plate tectonic map. This site will help my teaching about magnitude of the earthquake and depth because of the three-dimensional views that the site provides. By providing the students the opportunity to view the land from various angles they can more easily identify the patterns between earthquake depth and magnitude. Lastly, this site will help me teach about earthquake strength and the type of tectonic motion because the students will be able to visualize the three-dimensional side profile of the ground showing how the plates move relative to each other, the satellite view of the map to see the landforms generated at each of the plate boundaries, and the magnitude of the earthquake. This site is beneficial to my teaching because it combines all of this information together in a visual way that allows the students to make connections between the various aspects of earthquakes discussed above in real time with real earthquakes.

I feel that it is very important to include real world data integration into classroom teaching practices. I currently am involved in a PLT through the NYSMTP where we work to develop lessons and activities that bring real world data into the classroom. By integrating real world data into my teaching practice, students take ownership and are more invested in their learning and it makes the lessons more meaningful because they can see the connections between what they are learning and the natural world. By including authentic and meaningful data students are able to see the applications of data and the importance of data collection to answering questions and generating new questions to study. Using real data also helps to highlight the importance of collecting various data to obtain multiple views about the world, track patterns, and make connections to the data for long-term learning. It is my personal goal to have real world data connections in as many of my units as I can find meaningful data for. I also think that my students will be more invested in their learning when they can analyze

their own data and make connections between real world data and what we are learning in the classroom. I also believe that it is an important skill to learn how to analyze data, and I think teaching it in my classes is going to be beneficial for my students throughout the rest of their learning.

3) Interdisciplinary Context

I believe that this real world data integration can be used to connect various subjects creating interdisciplinary lessons, discussions and activities. Earthquakes are natural disasters that have occurred throughout all of history and have far reaching effects on the people of those cities. When my students are learning about ancient civilizations like Greece, Rome and others along the Mediterranean in their history class I will align my earthquake unit up with their ancient civilizations unit. Working together with the history teacher we can develop history lessons that introduces ancient civilizations and their belief that earthquakes were signs from the gods that they were doing something wrong and acted as a warning. The people of the civilization would then change their lifestyle, trading practices, or make sacrifices to satisfy the gods causing the earthquakes.

In addition to working with the history teacher on the lessons described above, we would both then work with the English teacher to develop lessons that integrate the ancient myths and stories about natural disasters from these early civilizations. In their English class my students would then learn about the history and culture of the ancient civilizations and their beliefs on natural disasters as signs from the gods. Reading their myths and writings as primary sources would provide the historical context to the occurrence of earthquakes and the uncertainty and lack of understanding of what was happening when the ground shook underneath them.

Lastly, in my course we would learn about why earthquakes of a large magnitude occur in these regions. We would investigate this region being sure to incorporate and analyze the surface features, frequency, depth, magnitude, and plate boundaries for the location of the ancient civilizations. To analyze this region we would use the IRIS data to look at the various aspects of earthquakes mentioned in the Lesson Enhancement section prior and identify the patterns of earthquake occurrence and their locations.

A common assessment given to analyze and explain the importance of the connections between each of our classes would be a blended assignment that incorporated the learning happening in all three of the subject areas to answer the assessment. The students would need to make connections and see the patterns and relationships between what they learned about: ancient civilizations in history and how earthquakes shaped their trading and culture, how their stories and historical writing referenced the occurrence of these earthquakes by the gods, and why the geology of this region made it prone to earthquakes of great frequency and magnitude.

By creating this interdisciplinary unit and common assessment students would be able to demonstrate their learning of the connections they made in their three subjects. They would also begin to see the importance of integrating real

world data to explain occurrences in the natural world around them and relate it to the history of ancient civilizations and other various contexts.

Having multiple subject areas working together like this demonstrates to our students the importance of using and tracking real world data to study natural disasters and their patterns of occurrence, how they affected ancient (and modern) civilizations, how they shaped the beliefs of their culture and society, and how they wrote about and incorporated these disasters in their history.