Melissa Schlank – Data Integration Assignment

Data Sources
New Jersey Flood Mapper - http://njfloodmapper.org/
NJ Sea Grant http://njseagrant.org/wp-content/uploads/2014/02/HWM.pdf
(with data about Monmouth County taken from the FEMA High Watermark Initiative https://www.fema.gov/high-water-mark-initiative)

Lesson Enhancement
In my 8th grade Science class, we have a unit on Natural Hazards and spend some time discussing hurricanes. My school is in Monmouth County, NJ and was heavily impacted by Hurricane Sandy. The students have a great deal of firsthand accounts of the storm, but it is important that they use data, and not just their personal observations and experiences. The data available on these websites provides information on sea level rising (and projected rising over the next 30 years) and flooding and the specific high water mark points for towns in Monmouth County after Hurricane Sandy. In addition, the interactive map from NJ Flood Mapper allows the students to see the areas that were affected by flooding.

When students use or collect data and analyze it, they can draw more scientific conclusions. It allows them to better prove or disprove their claims or hypotheses. It can be very difficult to overcome the misconceptions of middle school students when teaching certain topics. If there is clear data to prove a point, it helps chip away at some of the ideas that they hold fast to, and allows an opening for the students to accept new possibilities. In addition, it can help reinforce information that they may already believe or agree with, but seeing the data helps them understand and remember the concept, rather than just memorizing the fact.

Interdisciplinary Content
The most obvious interdisciplinary connections would be to what the students are learning in Math. There is data available for the students to create graphs. They would be required to set up the correct scales on the x-axis and y-axis and determine the best type of graph that can be used to represent the high water mark data for different towns, and graph the data. In addition, the students could complete calculations comparing storm surge high water marks to mean sea level and normal tide levels.

Connections can also be made to Social Studies/Geography using the interactive map of NJ. They would practice reading maps, finding towns, and using the locations of oceans, bays, and rivers to explain the impacts of the storm. The students would create their own maps, showing impacts of the

flooding from the storm with color coded keys showing the different levels of flooding.

***Note**: Directions for students to use the Flood Mapper interactive*

1. At njfloodmapper.org, press the START VIEWER button. Close the disclaimer.
2. Click on *Flooding* (top left box), then *Storm Surge* tab.
3. Click on *Zoom To: New Jersey* (right side) and use the drop down menu to select Monmouth County.
4. Zoom into Leonardo and find Bayshore Middle School.
5. Click on the SHOW SANDY EXTENT. What do you notice after you clicked on the **SHOW SANDY EXTENT**? Describe how the map changed. Look around - what happened to towns we are familiar with (i.e., Union Beach, Port Monmouth, Belford, Highlands, Sandy Hook). (**You may need to zoom out a bit if you zoomed too much)**
6. Scroll down the coast of New Jersey, what do you notice about the coast after Sandy?
7. Many people were evacuated from the New Jersey Coast. After seeing the extent of the water, did emergency responders make a valid decision to evacuate?
8. Look around Middletown. (zoom if needed) Where are some places that could be used as emergency shelters and why?
9. Uncheck off the SHOW SANDY EXTENT and zoom back out a little to see Perth Amboy down to Rumson.
10. Slide the SLOSH Category Slider bar to Category 1. What do you notice?
11. Move the slider up to Category 2, 3 and 4. What do you notice?
12. Zoom back in to Bayshore Middle or your street - what do you notice?