Dealing with Disaster: How does Delaware Add Up?

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Introduction

This past summer, my mom I went on a bus trip to New York City for the day and visited 9/11 Memorial site and museum. Neither of us has been to New York City since the horrific event happened in 2001. Upon entering the museum, a wave of emotions and memories flooded back seeing the various artifacts from the event and how they came to be collected. Valerie Marlowe, a doctoral candidate studying the documentation of disasters, spoke to us on how her thesis focuses on the documentation of 9/11 and how the process was very unique/different than the construction of other museums. In her talk, she mentions a bicycle rack that was set up outside the towers with the bikes still locked; due to the severity and quick pace of the events of 9/11 artifacts had to be collected quickly. [1] Walking around the museum, is was surreal to see the very bicycle rake Marlowe mentioned among other artifacts such as the fire truck from Ladder 3 that was at ground zero, the outer concrete walls and one of the stairwells of the towers used to escape. I also saw the vigil Marlowe mentions that created to honor those who passed away that day. Behind the one wall lie the ashes of the remaining victims whose bodies' were unclaimed.

Walking through the remaining parts of the museum, you follow a detailed timeline of when the different planes were hijacked and reached their final destination. With each plane, you hear firsthand accounts of witnesses of firemen on scene, people in the towers that managed to get out. You see the news footage of day, hear survivor accounts from each of the towers. Revisiting that day brought back a wave of raw emotions especially when we reached the part of the timeline that discussed the plane that struck the Pentagon.

I vividly remember where I was that day the planes hit the two towers: I was in my junior year of high school. I was sitting in my French class when my principal came over the loudspeaker to announce that the United States has been attacked. All teachers were instructed to turn on the classroom televisions; we watched the North Tower burning as we saw the next plane hit the South Tower on live television. I didn't know what to think, couldn't think, and speak. All classes were cancelled and students were dismissed to go directly home.

What haunts me to this day was the expression on my dad's face after we learned of that news a third plane hit the Pentagon. He was white as a ghost and it was the first time I truly saw him scared/worried. My uncle Dennis was meant to be at the Pentagon that day. He was to be in attendance at the meeting that was taking place in the western wing

where the plane struck. My uncle served as a colonel in United States Army and worked under the Secretary of Defense. For two days, we had no contact with my uncle or aunt to find his whereabouts. Finally, my grandfather called with the happiest news we had in two days. My uncle was safe. Seventeen years later and it still feels like yesterday my family went through the scare of a lifetime.

Reflecting on my visit, I thought that this museum would be a valuable learning experience for my students. However, my students' experiences and understanding of this massive disaster are going to be considerably different. There is a strong disconnect between students' memories of this or any recent disaster since they were not alive or very young. Moving forward, I want to create a unit that will work to bridge the disconnect and make these events relevant to my students.

Rationale

In our curriculum, we read and study accounts about Hurricane Katrina and the 2004 Boxing Day tsunami; however, the students I teach were only two years old during these two events. Students need to understand these events and the effects they had on the people involved. However, creating empathy and understanding is difficult for someone so far-removed (or barely alive) from the time of an event. One method of establishing empathy and understanding in students is to help them establish a personal connection to the events in which you are studying.

To help establish personal connections and generate a better understanding of how the victims were affected in these two events, we are going to compare them to more recent disasters that happened internationally as well as locally. Specifically to our curriculum, we will read informational article "Mammoth Shakes and Monster Waves" by Brenda Z. Guiberson where she writes about the 2004 tsunami that struck in the Indian Ocean. We will compare that disaster to the 2011 earthquake and tsunami of Japan as well as Typhoon Haiyan in 2013. The goal is to examine international disasters and see how warning systems have been implemented and changed/ updated overseas, see how different countries prepare for major disasters but then also rebuild from such a tragedy in comparison to that of the United States.

When shifting to a local/national standpoint, we specifically have to study Hurricane Katrina and the survivors' experience. As a part of our curriculum, we read two poems written from a survivors' perspective; in both poems, the Katrina survivors are expressing their disappointment in the lack of preparedness and the governments' response (both federal and local) in helping survivors. Students first need to gain background knowledge of Hurricane Katrina and the science behind the storm itself but also examine how the local and national community responded during and after the event.

Finally, as a class, we are going to discover how Delaware prepares for these types of natural events. Since being on the East Coast we are susceptible to experience both a tsunami and a hurricane; we came close to experience a category 4 hurricane with Hurricane Sandy in 2012. I envision students using evidence researched about Hurricane

Sandy to gage whether or not the state of Delaware is prepared to handle that type of storm and what they can do to better prepare themselves if such an event was to occur. We will investigate local emergency response management systems that the state currently has in place to see what Delaware does to prepare on a statewide to a school level. We will use information learned to critique the current system in place and to develop a Preparation and Evacuation Plan (plan of action). This will help create a group of educated and prepared citizens for what could be coming in regard to a disaster.

Demographics

Conrad Schools of Science (CSS) is a unique school in the Red Clay School District housing grades from sixth to twelfth. The school is considered a magnet school with a primary focus on mathematics, science and technology. The high school courses offered are meant to lead into various pathways: Allied Health, Sports Physical Therapy, Engineering and Biotechnology. All students now have to apply and interview in order to be accepted into the school. I am currently teaching 6th grade English/Language Arts and Special Education. In the past couple years at CSS the Special-education component was served using the inclusion model. Since I am dual-certified in teaching special –education and middle school English, I would teach a group of regular education students with the special-education population in the same class. The past school year, I have co-taught in in sixth grade English/Language Arts class where I am considered the content teacher while I had another special-education teacher assist on one day while an English Language Learner (ELL) specialist would come in the next day. Going into the 2018-2019 school year, I will continue to teach 6th grade English/Language Arts in an inclusion setting.

For this curriculum unit, I will focus on my sixth grade English/Language Arts class. Since the classes will be an inclusion setting, the lesson will focus on differentiating instruction so that the gifted students as well as the classified special-education students and the ELL students in the class will be able to comprehend the material. This unit has been made to fit a block schedule of 90 minutes classes.

Essential Questions

What responsibilities does the local community/government vs. the national government have in responding to a natural disaster?
How is the rest of the world different in their preparations of natural disasters in comparison to the United States?
How does the state of Delaware respond in dealing with different disasters such as earthquakes/tsunamis and hurricanes?

Dealing with Disasters: Disasters Defined and the Stages of a Emergency Response

Throughout the years, we have read about bad things happening. Bad things continue to happen on a daily basis. As humans, we had to evolve and grow in how we prepare for these ‘bad things’ happening. Now, whether these ‘bad things’ are natural events such as

hurricanes, tsunamis, earthquakes or human-caused incidents such as deliberate terrorist attacks, these events can leave a drastic number of lives lost and destroyed, immense amount of property damage and chaos. No matter where in the world these events may occur, we recognize they leave a lasting impact upon our daily lives. We seem to have this in common with the rest of the world…each country, in their own way, is doing their part to best protect their citizens when these catastrophic disasters occur.

In my English/Language Arts class, we are going to specifically look at natural events such as hurricanes, earthquakes and tsunamis and how they leave a last impact on our communities. But how do we, as a country as well as the state of Delaware, stand out as a country in preparedness and response to the rest of the world?

First, before we can examine how Delaware compares to the rest of the country and world, we need to gain an understanding of what a 'disaster' is. According to the International Red Cross and Red Crescent Societies "A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins."[2] So in defining whether an event is truly a disaster, Dr. James Kendra stated, "A disaster is not a disaster unless there is a loss of community of community functioning." [3]

In 2011, Dr. Kendra was a part of a team of policy makers and practitioners (engineers, mathematicians, Geographers, Physicians, etc.) that came together and found that there is a high need to assess communities' resilience in disasters. In looking at the the concept of resilience, or whether a community is successfully able to 'resist' the impact of an event and it's abilities to rebuild, the team developed *COPEWELL: A Conceptual Framework and System Dynamics Model for Predicting Community Functioning and Resilience After Disasters*. The group worked together to develop this model:

> "It incorporates factors thought to contribute to community functioning over time after an event, including natural systems, engineered systems, and countermeasures, which together reflect prevention and mitigation factors; population vulnerability, inequality, and deprivation; pre-event preparedness activities; social cohesion as a surrogate for emergent collective behaviors during and after the event; characteristics of the event itself; external resources after the event; formal emergency management activities, both planned and improvised, during and after the event; and community activities, both planned and emergent."[4]

In this model, the team created a method to evaluate different communities before, during, and after a disaster to help assess the amount of damage and time needed for that community to recover. The model broke events down into following categories: Pre-Event Functioning, Event, Short-term Event Functioning, and Long-Term Event Functioning.

The team concluded that if the various "Aspects of Community Function" were affected within the Pre-event phase, the event qualifies as a disaster. "Aspects of Community Function" are the aspects of daily life that if they are paused or not occurring, it has disrupted the functioning community. According to Dr. James Kendra, aspects of community functioning are classified as the following: *Material Support, Metabolism, Performance, Creativity,* and *Regulation.*

The first aspect of community functioning, *Material Support,* is seen as the basic everyday functioning of that community as a whole. For instance, does the community have food? Is there fresh water for drinking? Is waste and trash being removed? If these basic needs of the community are affected by an event, it is seen as a disaster since these basic needs of survival are not being met. This aspect is address first when in recovery. Next aspect, *Metabolism*, is essentially how the community is 'fueled' from an economic, social standpoint. This aspects looks at whether businesses are functional and people are going to their jobs, children are going to school, childcare is being provided (daycare), and public transportation is operational and running successfully.

Performance, the third aspect of a functioning community, is defined as the local culture of the community such as theatre, restaurants, museums, and sports entertainment. These facilities are open and collaborating with the community to make sure it is functioning at it's full potential. This helps bring economic success to the community overall. *Creativity,* ties into performance in some regards. This aspect of a community brings a sense of individuality to the community through artistic expression, music. For example, New Orleans and their music scene demonstrate the creativity of that particular group of people; the return of this aspect of community function was vital to the well-being of the members of that community after Hurricane Katrina. To return to a sense or 'normality' after Hurricane Katrina, bringing music back to the city was a necessity to bring back it's function overall since the music is such a large part of the culture, performance, and creativity of the community of New Orleans.

Regulation is the last aspect of community function. This is how we monitor the function of the community as a whole. This is where community members are striving to work together to create and maintain a healthy and thriving community. This means that the community is resilient and prepared for what may come.

> "Our model strongly suggests that communities can improve community functioning over time after an event by activities pre-event that go beyond traditional preparedness activities, such as reducing population vulnerability, improving access to social capital, fostering organizational networks and relationships, improving community social support, and planning for adaptation after events."[5]

Essentially, if we examine how well a community is functioning prior to the storm, assessing how prepared they were prior to an event, the more equipped the community will be when dealing with the impact of a disaster. Dr. James Kendra and the other contributors stated three factors that are examined that are seen as event modifiers*:*

Population Vulnerability, Inequality, and Deprivation, *Preparedness and Response, and Social Cohesion/Capital.* When looking to see how fast a community will take to recover and rebuild, these three event modifiers factors need to be considered when trying to judge on when a community can return to it's normal range of functioning. Kendra mentioned in our seminar that when taking in account these factors, recovery of place could vary greatly; it all depends on that particular community. Usually, in the United States it can take a community six to ten years to fully recover; it can take fifteen years or more for a community that's outside of the United States. [6]

When assessing a disaster, one event modifier that can alter the recovery process is *Population Vulnerability, Inequality, and Deprivation*. This is where we examine a community and the "likelihood that an individual or group will be exposed to and adversely affected by a hazard. It is an interaction between the hazard of the community with the social profile of communities."[7] Inequality and deprivation are where certain individuals of that community do not have the same access and opportunities due to the socio-economic system. For example, with Hurricane Katrina, 27% of New Orleans citizens didn't own a car so therefore had to rely on the public transportation system if they wanted to evacuate. This would make the ordeal more expensive than it would be otherwise. Likewise, this same group of people relied on the television for updates since they did not have the means to have the Internet. TV news reported evacuations only 48 hours prior to the storm while people with Internet access were given over a week's notice to plan and prepare for evacuation.

Preparedness and Response evaluates how well a community has prepared for events, respond as the event takes places but then has the "continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action." [8] *Social Cohesion/Capital* the final event modifier. According to Anita Cloete and her article "Social cohesion and social capital: Possible implications for the common Good" "the glue that holds society together." She goes more in-depth by further defining social cohesion as:

> "a state of affairs concerning both the vertical and horizontal interactions amongst members of society as characterized by a set of attitudes and norms that include trust, a sense of belonging and the willingness to participate and help, as well as their behavioral manifestations."[9]

Social capital is defined "as a representation of the resources that arise from relationships and which could assist individuals and the collective to reach their goals in working towards the common good."[10] As Cloete states, social capital refers to a group of individuals in the community while cohesion discusses the entire society. A growing community cannot establish cohesion unless it has social capital. Different members of the community have to establish a working relationship in order to better the society as a whole. For instance, farmers have to establish a working relationship with grocers, chefs, in order to sell their wares. Restaurants, grocery stores rely n the agriculture community to grow food that they can sell to the community members. Overall, this benefits that community as a society since they are building a growing economy yet benefitting their

own personal growth. When disasters strike, people who have taken the time to develop social capital and establish bonds with others in their community have a far better chance at receiving aid than someone who has little to no connections within their community.

When gauging a disaster and analyzing how well the community responds, there has been another model established entitled "Phases of Disaster". The National Governor's Association, the group that each state's governor belongs, designed a phase of disaster model to help emergency mangers respond to a disaster. The four phases are: *Mitigation, Preparedness, Response and Recovery*. This model is to help each state frame disaster's preparedness as well as their ability to recover.

The first phase of a disaster is called *Mitigation* is the steps taken by that community to reduce vulnerability to a disaster such and injuries and loss of life and property as a result of a disaster. For example, this could be rezoning areas or mandating certain building materials in areas that are more vulnerable to disasters i.e. coastal areas. *Preparedness*, the second phase of a disaster, focuses on understanding how a certain type of disaster might affect the community and how education, outreach and training can better support a community in crating resiliency. This is where the community discusses and creates a pre-disaster strategic plan and other readiness activities. For instance, that can create designated safe houses for stranded citizens prior to disaster and making the community aware of that resource.

Response addresses the immediate threats presented by the disaster (within the first 24 hours of impact). This includes doing what we can to save lives, cleanup, damage assessment, meeting basic survival needs such a providing food clean water, clothing, health and safety). *Response* can be further broken down into other categories/periods: Triage efforts, business re-entry, business recovery, federal resources. "Triage Efforts" assess and deals with the most pressing emergencies following a disaster; this period is often seen as a bit chaotic since you are dealing with the needs right as or after the disaster has effected the community. This is where we see action from federal resources right away such as the Federal Emergency Management Agency (FEMA) and non-profit resources as Red Cross are deployed immediately within this period. As we shift gears in assessing the needs of the community, we assess "Business Re-entry" into the economy. This is where the community assesses how well the business of that community can recover such as damage assessment, communication wit staff and vendors to return to the business (to get it functioning), repairs necessary, and assessing customers base. This could affect the long-term recovery of a community. "Business recovery centers" are established to help quickly set up a community to bring more revenue into that community to help it rebuild quicker. Finally, "Federal resources" are acquired, as well as state programs, and these groups start arriving to create temporary housing, planning of reconstruction of community. [11]

Recovery is the fourth phase of a disaster and this is where we focus on restoring all aspects of life back to it's prior level of functioning before the disaster came into effect. Recovery can be broken down into two phases: short-term recovery and long-term recovery. "Short-term" recovery typically lasts form the day the disaster struck from a

couple of months to at least one year after community was affected. This is where the delivery of immediate, life-altering (survival) resources comes into the play as stated in the Response phase. “Long-term” can range up to decades all based on how well that community can recover economically.

Now that we looked at how a disaster is defined and the phases of recovery, I am going to discuss the disasters my classes will examine to see how recovery looks different based on an international scale vs. national scale, updates in technology, and how our home state of Delaware manages a disaster. I’m going to first introduced my students to the basic understanding of earthquakes, tsunamis and hurricanes are and what classifies one of these particular events as a disaster (taking Cornell Notes I create for this curriculum unit) we are going to study four different disasters: The Indian Ocean Tsunami, the 2011 Japanese Tsunami and Earthquake, Hurricane Katrina, and Hurricane Sandy. We will first examine disasters on the international scale then compare to the disasters that happened on a national front.

Examining International Events and Emergency Response

We are first going to read and study about the 2004 Indian Earthquake and Tsunami to use as our starting point to see the absolute worse case scenario in regards to lack of preparedness and warning to seeing whether there have been any technology, preparedness, and warning updates to the 2011 Japan Earthquake and Tsunami.

2004 Indian Ocean Earthquake and Tsunami

On December 26, 2004, at 7:59 a.m. local time, an undersea earthquake of a 9.0-9.1 magnitude (of 10 on the Richter Scale) struck off the coast of the Indonesian island of Sumatra. A tsunami wave was triggered by the quake and traveled across the Indian Ocean devastating coastal areas as far away as East Africa. For the next seven hours, waves were reported to have reached a height of 30 feet or more when they hit the shoreline. At least 225,000 people lost their lives as a result of the massive earthquake and tsunami. Tens of thousands were also reported missing and about1.5 million people were displaced. Economic impact is considered be to be in the billions of dollars. Twelve countries were impacted by the massive waves, with Indonesia, Sri Lanka, India, Maldives and Thailand sustaining the majority of damage and lives lost.

After water receded, the devastation became clear. People were trapped or had to navigate piles of debris consisting of buildings, homes, cars, trees and corpses. Some people were carried as far inland as two miles, with no landmarks indicating their location. Water sources such as water aquifers became contaminated with salt water, chemicals, and sewer waste. Mosquitos were rampant and viruses/illness spread due to the wet, humid conditions. According to the article “Mammoth Shakes and Monster Waves”: “The lack of food, clean water, and medical treatment—combined with the enormous task faced by relief workers trying to get supplies into some remote areas where roads had been destroyed or where civil war raged—extended the list of causalities.” [12]

A month after the quake and water subsided, a research team from the Disaster Research Center, University of Delaware, University of North Texas traveled to some of the most affected areas in India and Sri Lanka to participate in a two-week field study with the Earthquake Engineering Research Institute reconnaissance team. Their goal was to gather data on disaster preparedness, response and recovery while visiting India and Sri Lanka (the areas within those countries that were most affected by the tsunami). While the team was there, the affected areas were in "immediate post-impact phases of the disaster." Signs that the communities were working to rebuild were there, but "the overwhelming majority of the communities we visited were still in the response or very early phase of recovery. For example, victims were engaged in the grieving process, corpses were being uncovered and burials were taking place, the cleanup process was underway, temporary shelters were being built, many of the fishermen (particularly in India) had not returned to the sea to engage in fishing activities, and many children had yet to return to school."[13]

In interviewing survivors and conducting their field research, the team identified a series of issues that were prominent in both India and Sri Lanka: lack of education and knowledge regarding tsunamis, immense loss of lives and property, economic issues, mental health issues, distribution of disaster relief aid and discrepancies between community members response and recovery efforts.

The group found that women across the board were more impacted by the tsunami than men; it was reported that woman disproportionately suffered a higher death rate in almost every country as a consequence of the tsunami.[14] According to the article we read in class on the topic "Mammoth Shakes and Monster Waves," the reason a high number of women died was that in many communities women are never taught how to swim. Female survivors, determined by their gender identifies and roles in certain countries, often receive little maternal and reproductive care, attacked in refugee camps, and struggle in their new role as sole economic provider of the household, especially if there we only responsible for household duties and raising children (if the husband died as a result of tsunami). Men also struggle with their new role as breadwinner along with the role raising and educating their children if their wife died. Another major discrepancy found was how aid and relief was being distributed amongst the different communities. Some communities received and abundance of aid while other, particularly those communities in remote locations, there was no aid received or it was slow to reach the people. [15] Areas of Sri Lanka and India are also war torn due to the civil war/uprisings that were happening; the further complicated relief efforts to certain areas, especially if the government deemed that area a warzone or an affiliate to one of the rebel groups.

The major concern the research team realized that there was an apparent lack of awareness and knowledge regarding tsunamis, how they are created, and the appropriate actions to take. The community members noted they did not even recognize the basic warning signs, the receding waves. The team interview one elementary teacher in Sri Lanka; he informed the group "that his students have never heard of a tsunami and they did not know the meaning of the word."[16] This was typical across the region and

community members felt a sense of despair due to having no warning this was happening nor how to prepare for such an event.

This is, at times, how I feel when thinking of how I am prepared for such an event living in Delaware. We have never had to experience an event such as this and I feel that this "out of sight, out of mind" ideology takes hold in how we live our daily lives. I see that we as a community are not prepared for such an event, if an event of this magnitude were to take place. I want to use the Indian Ocean Tsunami as a starting point within our unit to show my students essentially what happens to a community that severely lacked in education of this type of disaster and how being ill-prepared plays a major impact in community recovery.

2011 Japan Tsunami and Earthquake

On March 11, 2011, Japan was hit with its most devastating earthquake in it's history. Along Japan's northeastern coast, a magnitude 8.8 to 9 on the Richter Scale, the earthquake struck 48 miles off of the coast of Japan with the collision of the Pacific Plate and the Euroasia Plate. This earthquake was so powerful, it caused the entire world to shift on its axis and Japan shift 10 feet out to sea. Parts of the coast of Japan sunk 3 feet, which later resulted in more devastation due to water surge. The World Bank estimated that the economic cost could reach up to $235 billion (which is deemed the costliest disaster in history). [17] The number of people who died is 15, 894 with more that 2,500 people still reported missing as of June 2016.

The massive earthquake hit at 2:46pm Japanese time and the quake lasted for 5 minutes. This is a rarity, according to Geologist Chris Goldfinger, who was staying and studying in Japan at this time. He was in Tokyo during the event and he exclaimed they only had a 60 second warning before the quake hit. "a typical earthquake lasts for a minute or so…but this one kept going and going. The intensity kept growing in size as well, bringing on a state of panic. You knew that this was big."[18] Scientists studying the event studying the event said that the seismic waves, the P-Waves were the first to hit (the fastest traveling of the seismic waves) the coast of Japan 15 seconds; the S-Waves soon followed and this is where we see the most damage happen from earthquakes.

The most devastation from the earthquake happened afterwards with the tsunami forming. A giant wave forming from the epicenter of the earthquake races to the coast of Japan and out into the Pacific Ocean at a speed of 500mph. As the wave moved closer to land, it turns into a swell and breaking wave. Water surge in some areas reached 26 to 128 feet in height; the wave traveled as far inland as 6 miles in some areas. The tsunami struck northern Japan first than hit the southern region of the island.

Depending on the layout of the land and water determined the height and intensity of the wave. Dr. Goldfinger stated in the "NOVA Science: Japan's Killer Quake" documentary that the height if the water surge and the intensity of it's effects differ from town to town. If the wave was only exposed to open water and the varying depth of the

seabed (deeper the seabed) the faster the wave moved towards land; the layout of the land determined how the tsunami behaved once it made landfall. [19]

For instance, the effects of the tsunami were different for the towns of Ofunato and Sendai. Ofunato was one of the first towns hit by the tsunami wave (20 minutes after the quake). The people were given very little warning to get to high ground and water surge reached 26 feet. Since in this little town the streets are very narrow, the water surge climb to extreme heights and the people couldn't get to high enough ground to get out of harms way. Tons of debris from houses, cars and boats filled the streets and the growing wave cause even more havoc. But once the waves receded, structures of buildings remained and various homes remained intact. The town of Sendai was complete opposite in effects due to the layout of the land; Sendai is an agriculture community where there are very little building structures but vast open fields. As a result of the layout of the land, this community was completely destroyed since there were no barriers in place to slow down/stop the wave.

In comparing the 2004 Indian Ocean earthquake the 2011 Tokohu Earthquake, right away you see significant updates in technology. Dr. Roger Bilham, a seismologist from University of Colorado, was surveying the area. He stated that a series of seismometers, strain gages, and title gages have been put in place around Japan, the community knowing they are at risk for a earthquakes and tsunamis. These instruments monitored the entire event; this is where the people of Japan were given a warning that the earthquake was happening. The people of Japan are immediately warned through their Emergency Management System. Japan has always been on the brink of updated technology and this event was no exception. As soon as the seismometers detected the seismic waves, alerts went to every individual with a television, cell phone, computer/Wi-Fi access, and radio. The warning also went out again once the monitors detected the tsunami.

Another way Japan was different in their response to this disaster is that they had more preparedness in place. One town called Miyako, which is 110 miles north of Sendai, had tsunami precautions in place. The town has built-in infrastructure and has taken the time to prepare residents due to their town being in high risk to tsunamis. All of their residents are prepared for tsunami since the town holds frequent tsunami drills; each person knows what their responsibility is if/when a tsunami happens. The town has sirens in place that will sound if there is a potential risk. Since the town is along the coast, the town had to put in place different structures to protect the people from extra water and flooding. To help with water surge, the town has built sea walls the height of 30 feet to address the potential water surge. Large gates have also been installed into the city walls/streets to keep water at bay. The issues that appeared in Miyako is that the water walls proved to be ineffective with this particular earthquake. As stated earlier, the earthquake caused the coast to sink 3 feet into the ocean. Since the coastline and seawalls sank 3 feet, it was hard to control the water surge reached the height of the 30 feet walls. But looking back at the event, Japan wants to put stronger, higher seawalls in place in more areas around the coastline.

In looking at the Japan earthquake/tsunami, I want my students to see how to availability of technology acted as a life/death factor for many of the people and how that simple update as a warning system truly impacted many people. Also, the Japanese ensure that tsunamis and earthquakes are a part of their education system and their communities are become more efficient in getting prepared. But, we still see that there are discrepancies that need to be addressed in keeping communities safe, especially if they lie along a coastline. I want my students to examine the Japanese Earthquake and tsunami and use this to address the preparedness of the Delaware coastline. First, students will watch the documentary and answer comprehension/reflection questions on the events that happened in regards to the 2011 Japan Earthquake. Next, I want students to evaluate the procedures the Delaware coastline is taking to protect the residents living along the coast as well as what effects water surge would have if travel up the Delaware River. Next, I want students to determine whether our state would benefit from creating seawalls to protect the coast of Delaware.

Examining National Events and Emergency Response

One storm in particular that we have to study, as a part of our curriculum, is Hurricane Katrina. As a class, we will learn the background of Hurricane Katrina and how the New Orleans community was impacted by the storm; we will examine actions taken before, during, and after the storm to evaluate how the national and local communities responded. Our last disaster we will examine is Hurricane Sandy, the storm that happened a lot more close to home. We will see the impact that New Jersey and New York suffered at the wrath of Hurricane Sandy and evaluate whether Delaware is up to par on being prepared if such a storm was to directly hit our state and what we would do to if/when this event was to occur.

Hurricane Katrina: The Natural and Human Disaster known as Katrina

What is still defined as the worst natural disaster to have struck the United States happened on August 29, 2005. Hurricane Katrina struck the Gulf Coast and created havoc in its wake. Cities were destroyed and families devastated as a result of her wrath. Overall, at least 1,245 people died in the hurricane and subsequent floods, making it the deadliest United States hurricane since 1928. Total property damage was estimated at $108 billion. The city of New Orleans was the most vulnerable and took the brunt of the storm. Even with all the warnings in place people still cannot fathom the magnitude of human crisis that presented itself when Hurricane Katrina struck. Nor, has the citizens of the United States planned on seeing a facet of American society that has either been mostly ignored or denied.

> "August 29, 2005, is a day that will be remembered by people all over the world and is now a part of history in the United States to be remembered in a way we remembered 9/11, or the days President Kennedy and Martin Luther King Jr. were assassinated…It's winds and water devastated parts of Louisiana, Mississippi, and Alabama, but it was the scenes in in the mostly black city of New Orleans that have contributed significantly to giving this storm its infamous status." [20]

Public debate arose about the local, state and federal governments' role in the preparations before the storm struck and in response to the aftermath.

During 1965 Hurricane Betsy, there were rumors that the government allowed for the levees to by dynamited so that the water from the river would flood the Ninth Ward- the area known where the poorer citizens and black community resided. Though, it was never proven to be true but understood to be true- nothing was ever investigated. The government just ignored it and brushed the issue with the levees under the rug. John Barry, author of *Rising Tide: The Great Mississippi Flood and How it Changed America* wrote in his book that the government flood policy was deeply flawed and that the decision to explode the levees was not a race issue but a money issue. Rumor was that this was to purposely revert water to the Ninth Ward and away from damaging the Lakefront District and the French Quarter, which are the wealthier neighborhoods in the city and the big tourist hotspots that bring a lot of revenue into the city. [21] In comparing the two storms, there are a lot of similarities between the outcome of Hurricane Betsy and Hurricane Katrina.

Even before the storm hit, analysts warned city and state officials of the weakened and substandard conditions of the levees. True to these predictions, the force f the storm caused the levees to break and the pumps fail to handle the amount of water flooding the city of New Orleans. Years before, FEMA Hurricane Study created Hurricane Pam which simulated a fictitious hurricane 5 storm to see what would happen if it hit New Orleans. The simulation showed that the city was completely flooded and the levees would not hold. Government officials ignored the warnings the organization and study presented.

In reality, Hurricane Katrina shifted and turned away from New Orleans so the brunt of the storm missed the city. Two-thirds of the deaths in Greater New Orleans were due to levee and floodwall failure, not the storm. The federal government hired specific engineers to build protective barriers to keep the Mississippi water at bay if a large hurricane was the come towards New Orleans. The government hired the U.S. Army Corps of Engineers (USACE) to build levees that acted as blockade and made a drainage system that would pump excess water if necessary.

Over fifty breaches in the hurricane's surge protection is what caused the majority of death and destruction. Overall, 80% of the cities neighborhoods became flooded and the water remained weeks after the storm disappeared. The designers and builders claimed the levee system followed orders mandated by the Flood Control Act of 1965. With further inquiry, it was soon realized due to a decision to use shorter steel sheet pilings in an effort to save money was the main reason for the levees failing. USACE was taken to trial in January 2008; the Crops were proven not financial responsible by the U.S. District court for the disaster. Exactly ten years after Katrina, J. David Rogers, lead author of a new report in the official journal of the World Water Council, concluded that the flooding during Katrina could have been prevented had the USACE just found the manpower to double-check its flood-wall designs. So we see another yet another example of a wealthy benefactor and the federal government collaborating together in their favor and ignoring

the needs of the people most affected and those whom need the most help (the lower-class/poverty) in the city of New Orleans.

Many New Orleans residents did decide to ride out the storm even with the warning to evacuate August 26, 2005. Also, a large number of residents rely on public transportation; it was hard to remove over 127,000 people out of the city if they have no mode of transportation. People were given orders to report to the Superdome if they had no means of transportation. A mandatory evacuation was issued, but came less than 12 hours before the storm made landfall. The emergency evacuation call came too late and thousands of citizens were left with no way out and forced to endure the storm. It was said that there were lots of school buses parked; Mayor Ray Nagin claimed there was lack of insurance liability and shortage of bus drivers.

In the wake of the storm, citizens of New Orleans remained stranded in the city without food, clean water, and shelter. All over the news, pictures of predominantly black New Orleans citizens stranded on rooftops, stranded in the Superdome and Convention Center without food and water for days. The ugly truths relating to poverty and race in our government's response to its citizens became crystal clear; race seemed to be the most significant predicator of disparities that are tied to an existing system of privilege for some and discrimination against others.[22]

Ever since Katrina, two things have become unmistakable: The physical devastation created by the disaster is enormous and the social divisions that were exposed and then rocked American society in the aftermath of the disaster are equally powerful.[23] We know in reality not all communities are created equal. If a community is poor, black, or even on the wrong side of town, it receives less protection than the suburbs inhabited by affluent whites. Generally, the rich and able take the best real estate offered leaving the poor and working class more vulnerable to environmental pestilence and hazards. [24] This fact became quite clear with Hurricane Katrina, highlighting the severe gaps and incompetence we as a society have in disaster preparedness but in the differential treatment of those with higher needs, poverty stricken and black communities and complaints of purposely being left behind and discriminated against. But we also see an ugly truth make it's way to the surface: the social climate we believed to have been true in the United States as a whole where equality for everyone is prominent is not necessarily true and the government system that is built to serve its people only protects the wealthy and who it deems worthy.

In class, we are going to read two poems; first a free-verse poem entitled "After the Hurricane" by Rita Williams Garcia where it shares the frustration of a survivor named Fredrika: she felt 'domed' in and trapped by the people she thought was supposed to protect them (the police), there was no water nor food, families were separated from each other, and community members turned on one another. The poem captures what survivors felt in the days following the storm. The next pome called "Watcher: After Katrina, 2005" by Natasha Trethewey where is captures how the only thing people could do after the storm was watch and just wait, and captures the sense of being forgotten by the rest of the world. Finally, we are going to read experts from the book by Lori Peek and Alice

Fothergil called “Children of Katrina” to read first hand accounts of the children affected by the storm. This will not only allow up to better understand the poems of Hurricane Katrina we read in class but we can see how the social injustice was prominent factor in the experience of the people and see what essentially happens when a community does not prepare for a disaster such as this. This will allow my students to empathize with the people affected and the emotions that they feel as victims of Hurricane Katrina.

Hurricane Sandy

“Superstorm Sandy” brought major wind and flood damage to much of the Jamaica, Haiti Dominican Republic, the Bahamas along with the Mid-Atlantic and Northeaster States of the United States in late October 2012. Flash flooding generated by the storms endless amount of rain, high winds, and storm surge caused 147 people to lose their lives. The burnt of the impact of Hurricane Sandy hit the coast of New Jersey and New York, causing severe property damage, some areas forever affected and destroyed by her wrath. In the end, Hurricane Sandy caused more than $70 billion dollars in damage.

Hurricane Sandy started as a tropical depression on October 22, 2012 and swept through the Caribbean. The storm built in power as it moved up and intensified enough to be classified as a category 2 storm (winds speeding up to 110mph) by the time it hit the Dominican Republic and Haiti. As the storm traveled up the east coast from October 25 to October 28, the intensity of the storm began to decline and the storm was scaled down to a category 1 storm. On October 29, at 8:00pm, Hurricane Sandy made landfall near Atlantic City, New Jersey with sustained 80 mph winds. Delaware missed a direct hit by the skin of our teeth.

Several cities and towns along the coast of New Jersey and New York were devastated, with property damages being reported as an estimated 71.4 billion as of 2014. [25] Storm surge was seen as a major component of property damage; in areas of New York City, storm surge measured to nearly 14 feet. Due to the rising sea level caused by the storm, heavy rains, rising water levels of the Hudson River, New York City Harbor, and the East River, and high tide caused by the full moon, New York City as well as other coastal cities were subjected to massive amounts of flooding. Parts of the famous Atlantic City Boardwalk in New Jersey were completely destroyed. Roadways, the tunnels, and subways were all inundated. 8.5 million people were left without power and freshwater.

All of this, and Hurricane Sandy was only a category 3 storm; it became a category 1 storm when it moved up the coast towards New Jersey/Delaware due to the colder water. Though, the Delaware coastline was still heavily affected by water surge and high tides. According to the National Oceanic and Atmospheric Administration (NOAA) “The highest storm surges recorded by NOS gauges in Delaware were 5.99 ft above normal tide levels at Delaware City and 5.80 ft at Reedy Point. In Lewes, the gauge recorded a surge of 5.34 ft.”[26] This led to severe flooding, erosion of the coastline, and millions of dollars of property damage.

The overall effects of Hurricane Sandy for Delaware, Maryland, and Pennsylvania:

> "Across the region, high winds downed trees and power lines, and heavy rains caused several streams and creeks to rise and either approach or reach flood stage for a brief time, causing some flooding in localized areas. In Maryland, severe beach erosion occurred and a large portion of Ocean City's 100-ft fishing pier was destroyed. The storm surge in that city was considered the worst seen along the coast since Gloria in 1985, with up to 4 ft. of inundation occurring. Heavy rains produced by the storm exacerbated storm surge flooding along Chesapeake Bay, and the Delaware River swelled to record levels. Hundreds of roads were either closed or impassable by fallen debris or flooding during the height of the storm, with many remaining closed for at least a couple of days. Widespread power outages affected many, with up to 1.2 million customers without power in Pennsylvania. Preliminary estimates suggest residential damage of less than $5 million in Maryland, due to several homes having been 17 flooded. Overall damage estimates are about $5.5 million in Delaware and $20 million in Pennsylvania."[27]

With Hurricane Sandy, the governor issued mandatory evacuations for people in flood planes or areas prone to flooding, especially down along the coastline and beaches. Students in the northern part of Delaware ended up missing three days of school due to power outages and flooded streets. But what would have happened if the storm reached Delaware, it's original target? Delaware was lucky at the last hour, as it was projected to be a direct hit until the storm took a last minute shift further north around 7:00pm. As a result, areas of New Jersey and New York were devastated by "Superstorm Sandy" and have yet to recover six years later.

What if the storm reached the strength of a category 5 storm? Would Delaware be prepared to survive a storm of that magnitude and power? These are the major questions I want my students to answered by the end of this unit; I want them to truly evaluate whether they are prepared. In seminar, we learned that there is truly no way you can be fully prepared for a powerful storm but there are steps you can take to be proactive, educate yourself on the safety procedures/protocol, and take the necessary steps to create a safety plan for this type of situation. For this unit, I will have my students create a safety plan that they can share with the rest of their household. This way, my students become active citizens where they take the proper measures to evaluate where they live and construct a plan that helps get their household prepared.

Emergency Response and Relief on a National Level

As a society, we recognize that these types of events occur and these 'bad things' don't seem to be going away anytime soon.

> "We train firefighters to deal with everything from everyday kitchen fires to wild land firefighting operations that may involve hundreds or even thousands of responders. We store relief supplies in warehouses, for delivery to flood victims who have lost their homes and are temporarily unable to care for themselves. We

> develop national policies and frameworks, such as the Department of Homeland Security's (DHS's) National Incident Management System (NIMS) and Target Capabilities List (TCL) to guide planning and help to integrate disparate preparedness efforts.1 Organizations such as the National Fire Protection Association and the Emergency Management Accreditation Program develop standards to help distinguish strong from weak preparedness programs. As a society, we take myriad other steps and make substantial investments—from the community to the national level—to prepare for varied types of emergencies." [28]

The United States has in place both federal programs and regulations as well as relies on each individual state to prepare for emergency situations. Federal Emergency Management Agency (FEMA) is the federal agency that assists people before, during and after a disaster that has affected that particular area. FEMA was created on April 1, 1979k when President Jimmy Carter signed an executive order creating the agency. "For 38 years, FEMA's mission remains: to lead America to prepare for, prevent, respond to and recover from disasters with a vision of "A Nation Prepared."' [29]

According to their website, FEMA operates on a hierarchy system where there is a chief in command and then different people are given various responsibilities when dealing with a disaster. The country is divided into regions and has it's own individual office to report to if a disaster is to struck their particular area. For instance, if a disaster were to strike Delaware, the state would first ask assistance from the regional office before it talks with the federal branch of FEMA. FEMA wants each state to essential be proactive in taking care of its residents in a disaster since the officials are the most knowledgeable in what the community members need. Though, FEMA does offer various assistance programs for residents if they are survivors of various disaster events; people can look to their website for the process on getting aid and assistance.

Looking Locally: How is Delaware Prepared

So where does Delaware measure up? Which communities would be more vulnerable in the regards of preparedness, response, and recovery? This is one question that I want my students to examine when we are looking at how Delaware rates on being prepared for a disaster.

Delaware Emergency Management Agency (DEMA)

Delaware Emergency Management Agency (DEMA) is the lead state organization agency that coordinates emergency preparedness, training, response, and recovery and mitigation services in the event of a disaster affecting the state. DEMA was established during World War II by the Civil Defense Preparedness Office that is within the Department of Defense. Originally, the Delaware Defense Offices were located within Fort Delaware along the Delaware River. With the passing of the Cold War, DEMA shifted it's focus to address specific concerns that face Delaware: mitigation, preparedness, response and recovery from natural hazards and other weather-related

circumstances. The state also wants to prepare for human-related disasters such as chemical spills, biological hazards, and issues with power plants.

The group at DEMA is trying to reach out and create opportunities for Delawareans to become engaged citizens and actively prepared for various disaster events. DEMA offers regular seminars for business owners, emergency workers trained on how to deal with a disaster and the safety precautions their type of business needs to take. For instance, my father is the maintenance manager at Stonegates Retirement and Nursing Home in Greenville, Delaware. Every couple of years, he is required to take the safety seminar DEMA offers to make sure his training is adequate and up-to-date, especially since he is the manager on site during times of natural events and is required to monitor the status of the healthcare unit on site. DEMA offers these seminars several times a year with the hopes that more residents will learn to become better prepared. The website also offers various tips on how to prepare your home from flooding, gives instructions on how to get updates or "text-alerts" directly to your phone on driving restrictions and power outages, and offers other information on how to register with emergency services. With this unit, I want students to investigate the DEMA website and see what the site has to offer in helping them develop their safety plan.

Teaching Strategies

Cornell Notes

The Cornell method provides a systematic format for condensing and organizing notes. The student divides the paper into two columns: the note-taking column (usually on the right) is twice the size of the questions/key word column (on the left). The student should leave five to seven lines, or about two inches, at the bottom of the page. Notes from a lecture or teaching are written in the note-taking column; notes usually consist of the main ideas of the text or lecture, and long ideas are paraphrased. Long sentences are avoided; symbols or abbreviations are used instead. To assist with future reviews, relevant questions (questions should be recorded as soon as possible so that the lecture and questions will be fresh in the student's mind) or key words are written in the key word column. These notes can be taken from any source of information, such as fiction and nonfiction books, DVDs, lectures, textbooks, etc. Within 24 hours of taking the notes, the student must revise and write questions and then write a brief summary in the bottom five to seven lines of the page. This helps to increase understanding of the topic. When studying for either a test or quiz, the student has a concise but detailed and relevant record of previous classes.

This is the template I use in my classes to take notes. Often, I have a computer template where I will type in the terminology and questions that students will need to know. For special-education students, you can manipulate the template to make it more 'fill-in-the-blank" to assist them in writing definitions. We will use Cornell Notes to keep track of facts learned about earthquakes, tsunamis, and hurricanes to start the unit. We will use this template to take specific notes about the events we are studying and the necessary vocabulary that goes with each type of disaster/storm. We will also use Cornell

notes to study the poems that are about Hurricane Katrina and the specific vocabulary associated with the poetry.

Journal Entries

Journaling is a method of instruction often used in classrooms to help students improve their writing but also learn how to be reflective and critical thinkers by documenting their thought process and emotions/feelings on a prescribed topic. Teachers can use journal writing to meet specific goals, or the purpose can be wide open. Some teachers check journal writing and work on polishing skills; others use journals as the one "uncorrected" form of writing that students produce. Some teachers provide prompts to help students begin their writing while some leave the topic as student choice.

For my unit, students will be keeping a reflective journal where I will give prompts/questions based on activities learned and discussed in class about the four events we are learning about: Indian Ocean Tsunami, Japan Earthquake and Tsunami, Hurricane Katrina and Hurricane Sandy. Prior to reading about each storm, we will be watching a short documentary or excerpt from a documentary that explains each event. This way, students are able to view first-hand accounts, see raw footage during the events. For instance, students will respond or describe what they felt in watching parts of Spike Lee's documentary *When the Levees Broke.*

Collaborative and ability grouping

Collaborative learning can occur peer-to-peer or in larger groups. Peer learning, or peer instruction, is a type of collaborative learning that involves students working in pairs or small groups to discuss concepts, or find solutions to problems. Students are matched based on interest level, learning style, or by ability level. By grouping based on ability, I use reading Lexile levels (reading levels based on testing and classroom assessments) to match students in groups. Sometimes I will place students that match their same reading level and differentiate instruction based on ability (for instance, students who are low-reading level may get a different question set than my higher reading level students). Other times, I will match students with students that have different Lexile levels to help get lower-achieving students motivated by having a good peer model.

Students will be working together in groups of 2 to 4 to first learn about various types of natural disasters and create a presentation on each type. For this activity, students will be matched based on interest level and are match with students who also want to learn about that particular type of disasters. Later in the unit, students will work together based on ability level to discuss, analyze, and interpret the tone of the poems and informational text we read regarding the storms.

Think-Pair-Share

Think-Pair-Share is a specific type of responding to questions strategy. It allows for collaborative learning in that students think and generate their own conclusions about a

prompt or question. They then pair up with their assigned partner (or a peer of their choice) and share the conclusions they each came up with. The Think-Pair- Share strategy will be implemented to allow the students to collaborate and share their ideas on the author's intentions and use of persuasive techniques. We will use this technique when students share their thoughts on the discussion forum on Schoology.

Schoology

Schoology is a learning management system that acts as an online classroom. This system allows teachers to create and manage lessons for our academic courses that that is geared towards technology advancement.

Red Clay School District is a 1:1 technology school district where each student will have access to their own laptop; the middle school students and older are able to take this technology home with them to use as a tool to assist with their learning process in the classroom and teachers are able to develop online lessons using Schoology. For the purpose of this unit, I will be using Schoology as a way for my classes to discuss the topics at hand in an online discussion forums of essential questions for activities, journaling, online assignments incorporating the use of Google Docs and Slides, use of media folders for images regarding Hurricane Katrina, and online research for their culminating activity.

Google Docs/Presentations

Google Docs is a free Web-based application in which document s and spreadsheet s can be created, edited and stored online. Files can be accessed from any computer with an Internet connection and a full-featured Web browser.

We are a 1:1 technology school where students will be each getting their own Google Chrome book to use at home and in classes. With this added feature in the classroom, I want students to use Google Docs and Presentation to collaborate and work in groups. Google is unique in that multiple students can work on the same document, at the same time, and from different computers. Students will work together using Google Docs when identifying images that match the tone/narrate the speaker's experiences in the poems.

Classroom Activities

Below are three lessons that will be included in the unit of study. The lessons are create with a block schedule in mind: classes are 90 minutes at a time and I see my 6th grade students every day. Throughout this unit, students will be keeping a journal on Google Docs to help with the final project where they create a reflection 'documentary' or voice thread as a part of their culminating activity.

Lesson One: Introduction to Different Types of Disasters

With my first set of activities, I want students to be able to understand the different types of natural disasters that can occur here in the United States. These are the essential questions for Lesson One: What qualifies a storm/natural event to be considered a disaster? What are the various types of natural disasters that can occur in the United States? Which types of disasters impact the state of Delaware specifically?

The first part of the activity will take a couple days of class. Students will work with their group to create a presentation about one specific type of natural event/disaster. Students will be working in groups of three to four; matched based on their selection of top 3 disasters they want to research based on poll given in class. Each group will be assigned a type of natural disaster: blizzard, hurricane, tornado, earthquake/tsunami, virus, flood, wildfires, and volcanic eruptions. Students are to become the "expert" and report to the rest of the class on their specific natural disaster. Groups are to create a "shared" presentation on Google Slides (where each group member is to work on the same slide presentation). Presentation requirements are provided in Appendix B.

The second part of the lesson will be completed as a whole class. We will view the documentary "Top Ten Natural Disasters" by National Geographic. As they are watching the video, students will complete a handout asking for them take notes as they are watching and write five new facts learned about each event. At the conclusion of these two activities, students will be required to complete their first journal entry that is on a Google Doc online.

Here are the prompts to answer for Journal Entry # 1: What elements must be present in order for an event to be considered a disaster? Why do you think viruses are included on the list of 'natural disasters'? Based on what we have seen in the video and learned through each other's presentations, which type of natural disasters could happen in Delaware?

Lesson Two: Earthquakes and Tsunami

The required component by my district is what we will be completing first. One article students are required to read is the informational article "Mammoth Shakes and Monster Waves" by Brenda Z. Guiberson. Students are to read the article and identify the cause and effect relationships Guiberson writes when summarizing the events of the tsunami and based on survivor accounts. Once completing the article, students will get with their assigned group and complete various graphic organizers that help students determine the different cause and effect relationships of the earthquake/tsunami. Appendix C has an attached sample of one graphic organizer students will complete with their group. We will come together to review the various cause and effect relationships that were outlined in the article.

In wrapping up discussion on the 2004 tsunami, students will watch the special report filmed by the British Broadcasting Company (BBC) entitled "Tsunami:10 Years After the Wave" and answer a series of reflection questions. The documentary is based on

survivor accounts of that particular day and them giving their updated status on the 10-year anniversary of the giant wave.

Moving forward to our next storm/natural event, we are going to study the 2011 Japan Earthquake and tsunami. I want students to pay close attention to what technology updates were mentioned in assisting and/or effecting the safety of the Japanese people during this event. First, students will watch "Japan's Killer Quake" from NOVA Science using EDPuzzle; EDpuzzle is a website that allows you as the teacher to upload videos and video segments and assigned them to your students. What is unique about the site is that you can upload and embed comprehension questions as students are watching the documentary (it will not allow the student to fast forward or continue the documentary until the question is addressed).

After watching about the events in Japan, students will complete a third journal/reflection entry focused on a discussion of technology updates that were visible throughout the documentary. Students will need to discuss the examples of technology and warning systems; they will need to reflect on how this technology could be applied to protect the Delaware coastline and residents.

Lesson Three: Studying Hurricane Katrina and Hurricane Sandy

To open the lesson, students will be presented with the online discussion question "What does it mean when society is just?" Students will first compose their responses in the online discussion on Schoology then will complete a Think-Pair-Share with a partner to discuss their definitions. As a class, we will watch a video from NOVA: "Hurricane Katrina The Storm That Drowned A City". As they watch the video, students need to take notes on five facts they considered to be 'shocking' or something they couldn't believe happened. They will reflect on this for a fourth journal entry online.

Next, we will implement the use of Cornell Notes and take notes the storm's background using the teacher-made power point. For their final assessment, students will be asked to answer the first set of journal questions: What shocked you most about seeing the aftermath with Hurricane Katrina? Was it right for the government to wait over a week to respond/help the people of New Orleans?

Poetry as a way to discuss social issues

As part of our curriculum, we are required to read and compare the tone, styles, and structures of two poems: "After the Hurricane" by Rita Williams Garcia and "Watcher After Katrina, 2005" by Natasha D. Trethewey. These two poems address the social injustices that survivors faced during the aftermath of Katrina, especially the African American community. There is a strong tone that speaks to the lack of help after the hurricane and how those stranded were left without food, water, clean clothes for days.

To help determine the strong tone of the speaker, especially for After the Hurricane, students will create a visual presentation of each poem capturing the imagery presented.

Students will collaborate with a partner or small group to illustrate the stanzas of the poem. On one side of the slide students will rewrite the stanza as seen; on the other side of the slide they need to find an image from the online or from the online classroom in a media library that captures the image brought forth by the words/phrases of the speaker. In presenting their slides to the class, they need to explain why they chose that photo and how it captures the speaker's tone.

Victim Testimonies in Spike Lee's documentary *When the Levees Broke*

In class, we will watch portions of Act I and Act II of Spike Lee's documentary *When the Levees Broke*. After the completion of each Act, students are responsible for writing a personal refection in their journal highlighting the comments that two victims stated in the film

After completing Act II, students will need to write their own personal reflection of the events as well as answer this prompt: "What social inequalities did you notice throughout the documentary?"

Lesson Two: What Are Social Issues and How Art Sheds Light

Part A: Examples of Social Issues through Art

Do Now: Think-Pair-Share

Students will discuss the prompt: "What purpose do you think art serves? In other words, why do you think people create art?" Students will compose their response and share with a partner. After a couple minutes we will come together as a class to discuss. Overall, I want students to come to the conclusions that art does act as a tool for entertainment but can also be an outlet to educate people about larger social issues prominent in society.

I will demonstrate/ present a power point that highlights different examples of how artists have used different forms of artistic expressions to serve as a way to educate the masses abut the social issue at hand (i.e.-wall murals, photographs, dance, paintings, music)

Part B: Music is meant to talk about Social Issues

To practice examining forms of artistic expression as a way to educate on social issues, we will first examine music. As a class, we will listen to TuPac "Changes" and Black Eye Peas "What I Call Life". For each song, students will answer the following questions:

1. What words or phrases stand out to you? Why?
2. What is the tone of the speaker?
3. What issues of society are they trying to tell you about?
4. What is your reaction to the lyrics?

Students will each record their responses. We will regroup as class to discuss their responses as a whole.

In their journal, students need to answer these two prompts:

1. What is a song that defines who you are as a person or your human identity?
2. What is a song that carries meaning or shares a message with you?

Part C: Poetry as a way to discuss social issues

As a class, we will read and compare the tone, styles, and structures of two poems: "After the Hurricane" by Rita Williams Garcia and "Watcher After Katrina, 2005" by Natasha D. Trethewey. These two poems address the social injustices that survivors faced during the aftermath of Katrina, especially the African American community. There is a strong tone that speaks to the lack of help after the hurricane and how those stranded were left without food, water, clean clothes for days.

To help determine the strong tone of the speaker, especially for After the Hurricane, students will create a visual presentation of each poem capturing the imagery presented. Students will collaborate with a partner or small group to illustrate the stanzas of the poem. On one side of the slide students will rewrite the stanza as seen; on the other side of the slide they need to find an image from the online or from the online classroom in a media library that captures the image brought forth by the words/phrases of the speaker. In presenting their slides to the class, they need to explain why they chose that photo and how it captures the speaker's tone.

Lesson Three: Final/Culminating Activity

Activities

Students will select one of the following social issues to address in their art: race, poverty, bullying, gun violence, drugs and alcohol.

Each student will pick two of the activities to complete about their chosen social issue:

Write Three Poems that Target their Social Issue

- Write a brief 3-5 paragraph summary that summarizes their social issue
- Compose three poems that highlight their tone on their social issue
- Have to write one free verse poem and one traditional poem

Soundtrack that Inspires Hope

- Write a 3-5 paragraph summary that summarizes their social issue
- Student creates a sound track that is meant to inspire hope and explain why those songs where chosen

Photo collage

- Write a brief 3-5 paragraph summary that summarizes their social issue
- Collect or take 10 to 12 photos to include in their slide show
- Explain why they chose these particular images to highlight their tone and their social issue

Design a memorial/statue or wall mural

- Write a brief 3-5 paragraph summary that summarizes their social issue
- Design a memorial on a smaller scale elaborate on the materials that will be used
- Explain why they chose their design and how it speaks their tone on the topic

Video/documentary/PSA:

- Write a brief 3-5 paragraph summary that summarizes their social issue
- Make a 5-7 minute PSA about their social issue and why it's a major issue

Teacher Resources

Spike Lee's Documentary When the Levees Broke: Requiem in Four Acts

This is a documentary filmed and created by movie director Spike Lee about the effects of Hurricane Katrina and shed light on what survivors of the storm had to overcome. The documentary also shared the issues made on the part of the local, state, and federal government. We will be watching segments of this documentary to witness how the lack of preparation and assistance can resolve in the worse case scenario. This will also help students better understand the tone of the poetry we read as a part of our curriculum.

Student Laptops or access to laptops and online Journal and Prompts on Google Docs

Students will be using their personal Chromebooks and school Google Drive account to keep track of assignments, particularly journal entries.

NOVA Science Video: "Hurricane Katrina The Storm That Drowned A City"

Before reading the poetry, students will watch this documentary to gain background knowledge on what happened throughout the storm

NOVA Science Video: "Japan's Killer Quake"

Students will view this documentary on the Japanese Quake and Tsunami through EdPuzzle and use to answer one of the journal entries. Students will use this documentary to compare the technology updates/warning systems of approaching tsunami.

Website: EDPuzzle

EDpuzzle is a unique website that allows you to have your students watch clips, full documentaries, and you have the ability to embed questions into the program that students answer as they are watching. You can also assess and monitor students progress while on the website.

Website: VoiceThread

Voicethread is an online discussion board where it allows student to upload presentations, images and videos and gives them the opportunity to narrate their thought process. Fellow students/teachers are able to voice record comments and feedback.

Annotated Bibliography

Anita Cloete, "Social cohesion and social capital: Possible implication for the common good." 2014

This online article also discusses the various ways a society is able to rebuild itself after a disaster has occurred, discusses the different types of social cohesion and social capital and how each can affect a community's ability to rebuild.

Brenda Z. Guiberson, "Mammoth Shakes and Monster Waves: Destruction in 12 Countries", Holt McDougal, 2015, pg. 139

This is the informational text that students read to learn about the 2004 Indian Ocean Earthquake and Tsunami.

James Kendra, COPEWELL: A Conceptual Framework and System Dynamics Model for Predicting Community Functioning and Resilience After Disasters, 2011

This article written as a collaboration of people of different professions that all play a role in studying disasters shares the created and agreed upon model that professionals refer to when gaging a communities ability to rebuild after a disaster or an impactful event has occurred.

Tricia Wachtendorf, James M. Kendra, Havidán Rodríguez, and Joseph Trainor (*2006*) The Social Impacts and Consequences of the December 2004 Indian Ocean Tsunami: Observations from India and Sri Lanka. Earthquake Spectra: June 2006, Vol. 22, No. S3, pp. 693-714.

This is a case study various professors completed after their visit to areas of Sri Lanka and India a month after the 2004 earthquake and tsunami hit. This is a record of the interviews conducted with survivors completed, notes documented on communities' ability to return to functioning, effects of disaster overall.

"Phases of Disaster: Disaster Preparedness and Economic Recovery." Restore Your Economy, 2018. Accessed December 8th, 2018. http://restoreyoureconomy.org/disaster-overview/phases-of-disaster/.

Website discusses the phases of a disaster that a community goes through when affected; the site also offers resources on how the community can rebuild from a devastating event.

"What is a Diaster?" What is Vulnerabilty?-IFRC. Accessed December 8, 2018. https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/

This is the International Federation of the Red Cross website that defines what qualifies an event as a disaster and the process communities can do to rebuild after an event happens.

Appendices

Objectives/standards addressed through the unit of study:

CCSS.ELA-LITERACY.RI.6.1
Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RI.6.2
Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

CCSS.ELA-LITERACY.RI.6.3
Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

CCSS.ELA-LITERACY.RI.6.7
Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

CCSS.ELA-LITERACY.W.6.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Natural Disaster Group Presentation Requirements:

1. 10 to 12 Slides
2. At least 1 image/diagram per slide
3. 1 instructional video (3-5 minutes)
4. Cohesive font/background (easily visible)

This is the necessary information students will need to include in their presentation:

1. Facts about storm.

Students need to include the following:

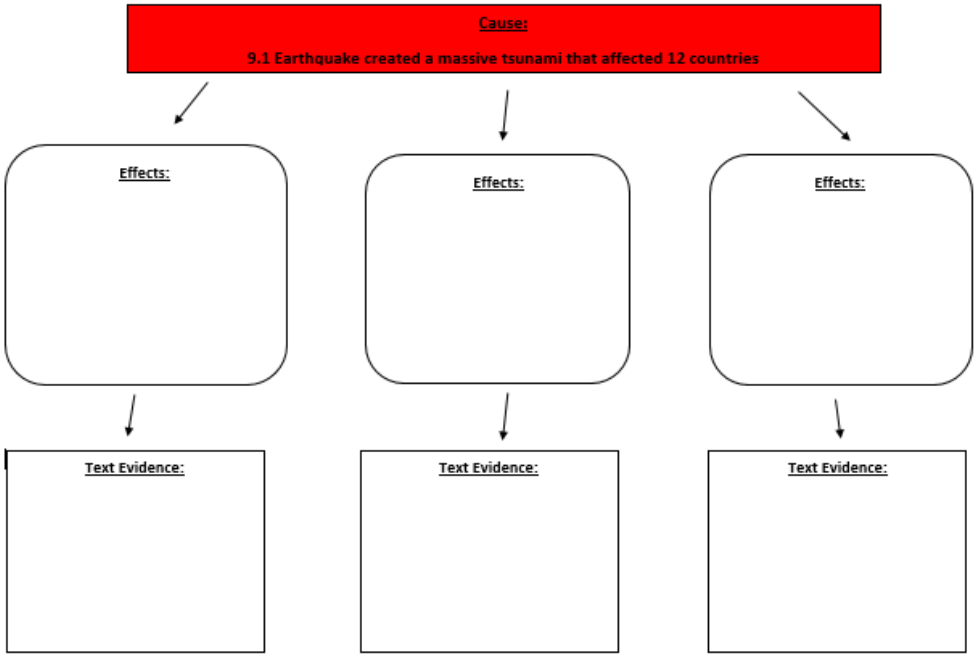
- Who studies the storm
- How storm is formed

- Season/time of year happens
- Most common locations of the storm
- How is storm classified into categories (i.e. Tornado is rated from F-1 to F-5)
- Damage storm causes
- Other facts found

2. Two Examples of Real-Life/Most Famous Storms that happened and effects
3. Survival kit
   - Items needed/recommended to have in order to be safe

Cause and Effect Chart Sample for "Mammoth Shakes and Monster Waves"

Sample Organizer that students will use when reading article "Mammoth Shakes and Monster Waves" to determine the different cause and effect relationships that happened in the 2004 Indian Ocean Tsunami.



Notes

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[1] Valerie Marlowe, seminar, 5/24/18
[2] International Red Cross and Red Crescent Societies, https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/

[3] James Kendra, seminar, 10/8/18
[4] James Kendra, *COPEWELL: A Conceptual Framework and System Dynamics Model*

for Predicting Community Functioning and Resilience After Disasters, 2011

[5] ibid
[6] James Kendra, seminar, 10/8/18
[7] James Kendra, *COPEWELL: A Conceptual Framework and System Dynamics Model for Predicting Community Functioning and Resilience After Disasters, 2011*
[8] ibid
[9] Anita Cloete, "Social cohesion and social capital: Possible implication for the common good." 2014
[10] ibid
[11] http://restoreyoureconomy.org/disaster-overview/phases-of-disaster/
[12] Brenda Guiberson, *Mammoth Shakes and Monster Waves*
[13] Tricia Wachtendorf *A Snapshot of the 2004 Indian Ocean Tsunami: societal impacts and consequences*
[14] ibid
[15] ibid
[16] ibid
[17] https://www.livescience.com/39110-japan-2011-earthquake-tsunami-facts.html
[18] Chris Goldfiger "NOVA Science: Japan's Killer Quake", documentary, 2013
[19] ibid
[20] Kristin Bates, "Through the Eyes of Katrina: Social Justice in the United States", pg. 1
[21] Spike Lee Documentary, When the Levees Broke, Act I
[22] Robert D. Bullard and Beverly Wright, "Race, Place, and Environmental Justice after Hurricane Katrina", xix
[23] Kristin Bates, "Through the Eye of Katrina: Social Justice in the United States"
[24] Robert Bullard, "Race, Place, and Environmental Justice After Hurricane Katrina, pg. 1
[25] https://www.britannica.com/event/Superstorm-Sandy
[26] https://www.nhc.noaa.gov/data/tcr/AL182012_Sandy.pdf
[27] ibid
[28] Jackson, *Evaluating the Reliability of Emergency Response Systems for Large-Scale Incident Operations,* 2010

[29] Federal Emergency Management Administration, https://www.fema.gov/, 2018