**Natural Hazards to Human Disasters**

by Stephen Sviatko

**Topic:** Weather

**Grade Level:** 9th

**SOLs:**

ES.13 The student will investigate and understand that energy transfer between the sun and the Earth and its atmosphere drives weather and climate on Earth.

 Key concepts include

1. observation and collection of weather data;
2. prediction of weather patterns;
3. severe weather occurrences, such as tornadoes, hurricanes, and major storms; and
4. weather phenomena and the factors that affect climate including radiation and convection.

**Time Frame:** 2 days or 3 hours

**Primary Objective:**

Students will

* describe aspects of natural events that pose threats to humans and impacts of these events on people, in writing and through discussion;
* use scientific vocabulary to summarize research about natural hazards; and
* compare and discuss the relative dangers posed by tornadoes, volcanoes, and earthquakes (and, possibly, other natural hazards).

**Opening Set:**

Ask the students if they have every been in a severe thunderstorm. Have each student describe the storm and how it made them feel. The storm could be described as dark, loud, windy, rainy, etc. and how it made them feel could be scared, soaked, etc. After 10 minutes or so let the students explain what they wrote. Explain to the students that scientists do the same thing when describing natural hazards. The students will learn about natural hazards and natural disasters.

**Activity:**

After dividing the class into groups. Explaining the difference between natural hazards and natural disasters is necessary. Natural hazard is a threat of a naturally occurring event that could cause negative effects on humans. The effect from the natural hazards is called a natural disaster. As a class list make a list of hazards. Have them vote on the more serious ones. Make sure they defend why it is more severe than the others. After the list is made, each group will research a natural hazard. Using a short report and/or poster, they will answer questions about the hazard. The questions are:

* Why is this natural event hazardous for people? (For example, consider the frequency and severity of the event, the number of people affected, or whether or not the event can be predicted.)
* In what states, countries, or regions does this natural event occur? Is there a spatial pattern to the event?
* What words and phrases are used when studying, describing, and measuring the event? For example:
	+ Terms for scientists who study the event (e.g., volcanologist, seismologist, meteorologist)
	+ How the intensity of, or damage from, the event is measured (e.g., Modified Mercalli Intensity scale, Fujita scale)
	+ Different types of the same event (e.g., tornadoes, waterspouts)
* How many human casualties (injuries or deaths) are caused annually by the hazard? What amount of property damage does the hazard cause?
* What do scientists understand about this natural event? What do they not yet understand?

**Discussion:**

Once the activities are done, the students will present their findings on Natural Hazards. After all the students have presented their findings, the class will again vote on the most severe hazards. Make sure that the students defend their statements.

**Student Assessment:**

To gain an understanding of the student's knowledge, each student will list what natural hazards have in common. They will also list the differences in natural hazards.