

## Best Practices of Technology Integration

**Title:** *We're Not in Kansas Anymore: Disasters!*

**Subject:** Science

**Intended Grade Level(s):** Upper Elementary (4<sup>th</sup> or 5<sup>th</sup> Grades)

### **Description:**

One of the most exciting things about studying weather is studying exciting weather. In *We're Not in Kansas Anymore: Disasters!*, students are introduced to a variety of extreme forces of nature. Students select the topic of their interest, do some guided research, and prepare a multimedia presentation on their topic.

### **Narrative:**

Have you ever noticed how excited the TV meteorologists become when severe weather is forecast? Students catch the same enthusiasm with this project. They found the research portion of this unit interesting personally because they were allowed to select their own topic and select their own research tools. The facts were relatively easy to find in all the sources, and students loved sharing spectacular pictures with their neighbors. Students shared search strategies with others as they discovered the best way to find images and facts. Using online resources opened the way to endless varieties of projects, all individualized by students' selections of graphics and special effects. Students learned to synthesize their facts into their presentation. They had to extract only the most meaningful tidbits to create "bulleted lists" in PowerPoint®. By the end of the 3<sup>rd</sup> class, every student wanted his or her project shown to the rest of the class on the big screen (We used a projection device for this.)

The technology part of this project was the most rewarding. Students are begging to do PowerPoint® projects for the rest of the year! They were thrilled with each new skill they learned, from noisy sound effects to pasting incredible photographs. All the multimedia skills are universal to similar software programs, but students were especially impressed to know businesses everywhere are using PowerPoint® to do presentations. Students will be comfortable in the future creating products to show other learning in this format.

Besides using needed skills in both research and their multimedia presentation, students connected with other places in the world that had actually had these disasters occur. The lesson was meaningful and authentic because many students had personal connections or experiences with one of the disasters. All students took the school disaster drills more seriously after witnessing the effects of tornadoes. Students living in Michigan certainly need to know ways to prepare for blizzards! PowerPoint® is well suited to this project because of the many special effects available. Students enjoyed pasting incredible photographs into their projects and making "explosion" sounds occur at the right time.

## **Curriculum Benchmarks:**

### **MI.SCI.V.3.EL.2**

Describe weather conditions and climates. (Key concepts: Temperature—cold, hot, warm, cool. Cloud cover—cloudy, fog, partly cloudy. Precipitation—rain, snow, hail. Wind—breezy, windy, calm. Severe weather—thunderstorms, lightning, tornadoes, high winds, blizzards. Climates—desert (hot and dry), continental (seasonal changes), tropical (hot and humid), polar. Tools: Thermometer, windsock. Real-world contexts: Daily changes in weather; examples of severe weather; examples of climates, including desert, mountain, polar, temper-ate.)

## **Detailed Timeline:**

Teacher preparation will take about one hour. Student time required is three fifty-minute class periods.

## **Materials/Hardware/Software:**

I used a computer lab setting for this project. All students had access to their own computer with six online encyclopedias, the Internet, and a multimedia software package. The teacher had a projection device for demonstration purposes. Students researched their topic using online encyclopedias, the Internet, and print resources that I'd gathered from the library. They took notes on note cards (each student needs two). Software used could either be HyperStudio® or PowerPoint®; it will be used to demonstrate student learning in text, graphics, and special effects.

Print resources used:

- Kramer, Stephen. Eye of the Storm. Putman, 1997.
- World Book Encyclopedia

Series available (listed by publisher):

- Enslow Publishing's "American Disasters" (Hurricane Andrew)
- Franklin Watts' "A First Book" by Melvin Berger (Disastrous Volcanoes, Disastrous Earthquakes, etc.)
- Henry Holt's "When Disaster Strikes" (Blizzards, Earthquakes, etc.)
- Thomas Y. Crowell's "Let's Read and Find Out Science Books" by Franklyn M. Branley (Earthquakes, Tornado Alert, etc.)

Other books can be found in these sections of the library/media center: 363.3, 551.2, and 551.5.

Examples from our library:

- Bender, Lionel. The Story of the Earth: Volcano. Watts, 1988.
- Challand, Helen J. Earthquakes. Chicago, IL: Childrens Press, 1982.
- Cosgrove, Margaret. It's Snowing! New York: Dodd, Mead, 1980.
- Hopping, Lorraine Jean. Hurricanes! New York: Scholastic, 1995.
- Tornadoes! New York: Scholastic, 1994.
- Jennings, Terry. Volcanoes and Earthquakes. Danbury, CN: Grolier, 1992.
- Kahl, Jonathan D. Storm Warning: Tornadoes and Hurricanes. Minneapolis: Lerner, 1993.
- Lye, Keith. Volcanoes. Austin, TX: Steck-Vaughn, 1993.
- The Magic School Bus Blows its Top: a Book About Volcanoes. New York: Scholastic, 1996.
- Taylor, Barbara. Mountains and Volcanoes. New York: Kingfisher, 1993.

Internet resources:

<http://www.tornadoproject.com/>

<http://www.stormchaser.com/>

<http://www.chaseday.com/chaseday5.htm>

<http://www.volcanoes.com/>

<http://volcano.und.nodak.edu>

<http://vulcan.wr.usgs.gov>

<http://www.nhc.noaa.gov/>

<http://www.gopbi.com/weather/storm/>

<http://www.hurricanes2000.com/>

<http://volweb.utk.edu/school/summercs/ellism/mel.htm>

<http://www.thefamily.com/preparation/blizzard99.htm>

<http://www.csac.org/>

<http://nsidc.org/NSIDC/EDUCATION/BLIZZARD/intro.html>

<http://quake.wr.usgs.gov/>

<http://wwwneic.cr.usgs.gov/>

### **Teacher Preparation:**

The teacher would need to spend about 30 minutes gathering print materials from the library and another 30 – 60 minutes looking at appropriate online resources. If students have these sites bookmarked or on a hot list, their time is used more efficiently.

### **Prerequisite Student Skills:**

Students need to already have experience taking notes from a reference source (print or online). They also need to have at least minimal knowledge of the software selected for this project, either HyperStudio® or PowerPoint®. For this project, the students I worked with used PowerPoint®. They knew how to add new slides, insert clip art, use Word Art, and apply design templates. During the course of this project, they learned how to copy and paste images from the Internet and on-line encyclopedias, use visual and audio transitions, and use preset and custom animations.

### **Activities/Procedures:**

This lesson took three class periods; our classes were 50 minutes in length. During the first class students were introduced to this project with a book and a model. I used Kramer's Eye of the Storm about the life of a storm-chaser photographer to introduce this lesson. I then showed the students a teacher-made PowerPoint® presentation on tornadoes as an example (attached). They were asked to select a disaster from the following: volcanoes, tornadoes, blizzards, hurricanes, or earthquakes. Students labeled their two note cards on each side to prepare for their research:

1. Define the disaster and give some of the causes.
2. Show the effects of the disaster.
3. Locate where this type of disaster often occurs (may list some famous ones).
4. Find out if this disaster is predictable and what preparations can be made.

Students began researching their project, writing down the source they were using on their note card at the bottom. During the second class, I reviewed the project overview and answered general questions. I showed students some of the basics for their multimedia presentation. Each project needed six slides or cards:

1. Title card with student's name
2. Definition or causes
3. Effects
4. Locations
5. Preparing or predicting
6. Conclusion

The students could decide on the pictures and sound effects. They were shown how to select clip art and how to copy images from the Internet. (Our lab was not equipped with a scanner, but other pictures could be inserted in that way from print resources.) Students spent the rest of class doing research; some began their PowerPoint® presentation. For the third class, I shared student work with the classes. Students then continued independent work. For the project completion, we printed in "handout" format to take home. We also allowed time for "show and tell"; each student moved from computer to computer viewing their classmates' work. They rated one classmate's project from 1 – 4 stars, using this rubric:

- \* Used six slides (with a design template for background)
- \*\* Used six slides and listed some facts
- \*\*\* Used six slides, listed some facts, and had some graphics
- \*\*\*\* Used six slides, listed some facts, had some graphics, and included special effects (visual and audio transitions, custom animations, preset animation)

For evaluation, the teacher used the following rubric:

**Assessment/Evaluation:**

- 20 points - procedure (followed good note-taking practices, worked efficiently)
- 10 points – note cards with sources (notes on each side, sources listed)
- 35 points – content (each slide had factual data as prescribed above)
- 20 points – slides (had 6 slides, with images, animations, transitions, etc.)
- 15 points – overall quality

**Follow-up Activities:**

When any of these events occur in real-time, we take a few minutes to look at that disaster somewhere in the world, either on TV, on the Internet, or in the newspaper. Students who researched that particular disaster have a real appreciation for the effects on the people in the area affected.

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