

## OBSTACLES TO IMPLEMENTATION

The biggest obstacle for this project was getting students to see the "big picture" of the activities we were doing and not just seeing each activity as a separate entity. Being middle school students, they wanted to just do the "cool" activities

The first major issue was that my initial activities were vague and written more for older students to follow independently. I had not written an activity for a lab-type experiment before, so I wrote directions as I normally would for my math activities. The first specimen collection to test for pH levels did not go very well. After seeking out a wonderful science teacher, I realized that all activities could be rewritten as detailed checklists with several reflection questions during completion.

The second issue was to get students to relate all of the activities to Hurricane Katrina. I prefaced the project with the kids as a brief introduction to integrating math and science in the area of weather and mentioned Hurricane Katrina for the reason behind it. After we did a few labs, students wrote reflections that related our experiments to Hurricane Katrina. Most of the reflections were brief and showed no true connection. I showed a video documentary of Hurricane Katrina and held an open discussion of experiences to help them remember what it was like. Afterwards, the students seemed to be able to make the connections I had hoped for.

The third issue was the classroom time that had to be dedicated simply to teach the technology to the students. Our students have no experience with graphing calculators or data collection devices in seventh grade. I tried to just teach enough to complete the tasks for each project, but I could tell that they were extremely curious about everything the technology could do. Although it took about three days of classroom discovery, I didn't have as many technical questions to answer for the remaining activities. They learned enough to figure out what they didn't know.

## SUCCESSSES IN IMPLEMENTATION

Students often do not have a chance in earlier grades to see the connection and integration between subject areas. In my school, there are few science experiments that are done in a science lab. This project allowed students to take a devastating experience and understand more of it than what is written in their textbooks. Using the technology really helped me teach mathematics that seemed difficult for students to learn before. Where normal students would have a hard time using an equation to solve a real-world problem, students were able to create their own equations for spreadsheets. Where prediction used to be a "boring" section in the textbooks, students were watching the weather for patterns to determine if tornadoes, tropical storms, or hurricanes were likely.

I am most appreciative for this grant because of the conversations, discussions, and ideas that were sparked from the activities we did. Students were challenging each other's data and questioning hypotheses. Students wanted more information than I could provide so they did their own research voluntarily, without desire of extra credit. The attitudes of

several girls towards science or math careers also changed. To hear, "I like this! Mrs. Hedgepeth, what job could I do that would deal with this all day?"

I truly think this project has shown a need in middle schools for an elective that allows for projects like this one. I realized during the project that I wouldn't be able to carry out all of the activities I originally intended. Some of the activities could have gone on for weeks if we'd had time. My principal is very open to creating an elective where more of these integrated activities can be explored by students. Student will learn more about our world through doing!

#### PROJECT DESCRIPTION

Hurricane Katrina's impact was completely devastating to our community and changed the lives of our students. After the hurricane, students demanded information about the "how" and "why" of hurricanes and other destructive weather phenomena.

Using technology, students completed many activities that infused all of their subject areas into studying weather and other scientific ideas. We studied things like wind force, how hurricanes are formed, series and parallel circuits (how to get the most out of your batteries), the chemistry and characteristics of water and soil, using probes to collect data about different liquids, how temperature can affect things in and around water, prediction by weather patterns, exponential growth of bacteria, and so much more.

These activities allowed us to relate our state standards for math and science to students throughout their discoveries. Students used their findings and internet research to create spreadsheets to analyze data. PowerPoints were used for presentation portfolios.