Middle School Clean Tech Awards:

Region II: Central MA:

Ricky Casparriella and Shantanu Sharma, Gibbons Middle School, Westborough

"Hurricanes Revealed"

Ricky Casparriello
"I have always enjoyed science and doing experiments. I love working with my hands. I'm very resourceful. I also have interests in environmental science and would like to be part of the solution to some of today's problems with the environment. Some goals I'll be working on this summer is to start my own organic vegetable garden and set up a recycling center in my home. I'm also into sports and am currently playing lacrosse and baseball. In the winter, I enjoy playing basketball, but my all time favorite sport is football. I would like to give this sport further concentration in High School. My family is very important to me and is a constant source of love and support."

Shantanu Sharma
"I am glad to be part of this website and I'd like to share some things about myself. I am really into science, especially making experiments and architectural design. I also like chemistry and the field of electrical engineering. I like to play some sports such as basketball and tennis, and I also like to play some instruments. But one of my most favorite things is art, as I am always drawing and sketching many different things. I am always ready for a challenge. I am focused on my academic work and I also love to play basketball with my friends when I get home. I also enjoy swimming to relax myself just like when I play songs on the piano or guitar."

OUR PROJECT:

Our question… "What is the optimum temperature for a hurricane to occur at its strongest force?"

Our hypothesis was that if the water temperature was in the hotter range (within our controlled environment) between 40-50°C, then the hurricane will take place at its most severe force.

We decided to conduct this experiment due to the fact that a hurricane is a very challenging topic. We felt it is an important topic in today's world after witnessing the severe damages caused by hurricane Katrina and the fact that Global Warming (our oceans getting hotter) may have an effect on our weather patterns. We acquired an extensive detail of information that states the processes by which a hurricane is formed and the factors involved. The usual twister in a bottle does not show the proper detail or accuracy to how a hurricane takes place in real life which is why we decided to try to actually

recreate a hurricane inside a controlled environment and having a simulation model in the center to show how the wind is creating a hurricane in relation to the water temperature (cold to hot).

We recreated our hurricane inside a tank by using a fan, varying water temperatures (heated and cooled), and we measured it using a wooden puck to show the number of laps it revolved as the temperature varied. Then we obtained all the technical materials necessary to conduct the experiment. We analyzed the data, formed graphs and charts, and finally finished the project after some failures, some triumphs, and the use of the scientific method.

We reached the conclusion that hotter temperatures will be more conducive to a hurricane occurring at its strongest force. In our trials, the coldest temperature, ice water at ~ 0°C, resulted with the least number of laps, 12 laps, whereas the hottest temperature, 50°C, resulted with the greatest number of laps, 27 laps.