



MASSACHUSETTS CLEAN TECHNOLOGY AWARDS

A Program from The Foresight Project Inc; www.theforesightproject.org



Middle School Clean Tech Awards:

Region III: Southwest MA
Award Winner:

Madysen Camara, Espirito Santo School,
Fall River

" Which Insulation Works Best?"

Madysen is 11 years old and a 6th grader at Espirito Santo School in Fall River, MA. She lives in Dartmouth, MA with her parents and older sister Makenna. She is a straight A student who excels in all of her subjects in school. Some of the many activities she participates in are dancing, cheerleading, basketball and soccer. In her free time, she enjoys swimming with her sister, reading and listening to music.

Madysen chose her Science Fair project "Which Insulation Works Best?" because she wanted to show how important it is to conserve energy in conjunction with using the alternative sources of energy that have been developed. This project is a follow up to her 5th grade Science Fair project entitled "Is Your House The Right Color?", another project about conserving energy.

My PROJECT:

My science project is about conserving energy. I chose this project because I wanted to know what would be the best insulation to use when building a house. Insulation is important because it keeps the temperatures from changing too quickly. I also wanted to tell my family and friends what insulation might be best when they are building a house themselves. The right insulation will keep you from having to spend more money on heating or cooling your home. Conserving energy is something everyone should practice. The more energy you conserve, the more money you save. It also helps the environment when we conserve energy.

My hypothesis states that if you use better insulation, then the temperature will not change as quickly. This is because better insulation keeps things warmer while poorer insulation does not keep things warmer for a long time. [I had several bottles of water and measured the temperature of the water when the bottle was wrapped in different insulation.] My independent variables were the different types of insulation I used for my experiment; each type was made from a different material. The dependent variable was the temperature of the water inside each bottle. The readings were different for each bottle because of the insulation material I used.



MASSACHUSETTS CLEAN TECHNOLOGY AWARDS

A Program from The Foresight Project Inc; www.theforesightproject.org

I started my experiment by placing eight empty bottles on a large board. Next, I covered seven of the bottles with the seven different types of insulation I used for my project: aluminum foil, a cotton sock, gloves, fiberglass insulation, newspaper, leaves and dirt. I left one bottle with no insulation to show how quickly the temperature can change without any insulation. I then filled the large pitcher with hot water from the kitchen faucet. I measured the temperature of this water and recorded it. This would be the starting temperature for all the bottles. I filled each bottle to the same mark and place the covers on them. After placing the covers, I waited for 15 minutes. I quickly removed each cover and measured the temperatures for each bottle. I recorded these in my data table. I put the covers back on and waited another 15 minutes. Once again, I measured and recorded the temperatures in my data table. I repeated this last step one more time to get my last amount of data.

My results showed that my hypothesis was correct. The fiberglass insulation worked the best since it is the best type of insulation. The bottle with the dirt insulation had the greatest temperature change. The other insulation materials also did well but not as good as the fiberglass insulation. Some errors that may have happened included leaky bottles or a broken thermometer. None of these problems occurred during my experiment.