



2010

## MASSACHUSETTS CLEAN TECHNOLOGY AWARDS

A Program from The Foresight Project Inc; [www.theforesightproject.org](http://www.theforesightproject.org)



### Region I: Western Massachusetts

Sierra Swords, Brigid Swords, and  
Nicole Beliveau; Westfield  
High School, Westfield

CleanTech Award: *"Solar  
Furnace"*

#### About Us:

We are all sophomores at Westfield High School, with many interests, especially sports.

Sierra Swords: I am 15; My sports are cross country, indoor and outdoor track. I enjoy running because it allows me to push myself to my limits and requires much determination, which has taught me to work equally hard in school. Outside of school I am busy with friends, work, and volunteering at a local animal shelter. I enjoy all of the sciences, and hope to major in chemical or environmental engineering in college.

Brigid Swords. I am 15; My sports are field hockey and softball, both with high school teams. I have two older brothers and a younger sister. In my free time, I enjoy going outside, reading and being with friends and family. I find alternative energy very interesting and would like to pursue a future in such a field. I also volunteer in various ways; I teach Spanish to elementary students and help out at my church.

Nicole Beliveau: I am a two-sport athlete, and am on the school's Varsity Field Hockey and Lacrosse teams. I also play for Western Mass Selects in the summer and fall, and a separate club team called Demolition in the winter. Along with school and sports, I love running, spending time with friends, and playing the guitar. I have many dreams and aspirations, such as playing college lacrosse and studying veterinarian medicine.

#### Our Project:

Although solar ovens are familiar to most people, we wanted to test if energy harnessed from the sun could create a solar furnace: i.e. one that would produce enough heat to burn through different test materials.

Using materials from around the home, we built the solar furnace by using highly reflecting angled mirrors to concentrate the energy to a single point. Then, after the solar furnace was constructed, three different materials (paper, aluminum can, wood) were tested to see if the furnace produced enough heat to affect these materials.

Although most of our testing was done indoors, using a high wattage light bulb. Fortunately, we recently had a beautiful, sunny, hot weekend and we were able to test our solar furnace outside for the first time. We found that the design was very effective: the furnace exceeded the maximum of our temperature gauge: it reached over 900 degrees Fahrenheit! We are very excited about the possibilities of this highly reflective approach