

Marquette University: Society of Physics Students
Reaching out to Others

During the 2003-2004 academic year, Marquette University's (MU) chapter of the Society of Physics Students has participated in three activities that profoundly impacted young physics students. We took three telescopes out on multiple nights and opened them to the public. A couple of our students judged a local K-8 science fair. Our third and largest activity was an interactive trebuchet demonstration for the younger siblings of Marquette University students.

Of our star nights, the most popular was dubbed "First Light," during which we first introduced our two 8" GPS-controlled telescopes to the public. Professors gave talks on various astronomical subjects in a classroom while SPS monitored the telescopes. Our audience ranged from 5-60 years of age. By far our most enthusiastic guests were the youngsters. In spite of a wind chill below zero, they loved seeing our two main attractions - Mars and Saturn. Of all of the age groups, kids 5-10 years old were the only ones who didn't mind the cold (even SPS had to run inside occasionally to warm up our fingers enough to be able to use them!). One girl in particular caught our attention. She wasn't even tall enough to reach the eyepieces, but insisted her father lift her up to view Saturn repeatedly. She was amazed by its beauty, and the adults present were touched by her sincere interest. The little girl even took a copy of *Astronomy* magazine home with her later that night, though we doubt that she could read it very well - much less understand it. At least she would appreciate the pictures in a way that so many people no longer can now that they focus on words.

Our second activity more directly affected a much large number of children. Two members of the Society of Physics Students were able to take advantage of an opportunity to help judge a science fair competition. A local school hosted this competition for grades K-8. Kids in kindergarten through third grade worked as a class, while grades four to six worked in small groups, and the seventh and eighth graders worked individually. The job took only five hours, and was spread over the course of two days. In this time, we worked with the faculty in order to grade the poster made for each project. The posters were greatly varied in both quality and topic. There were some obvious procrastinators, but also some children who had clearly put a lot of time in their projects.

Science fair judging was a fairly recent undertaking, and the two SPS members involved have been invited back to take part in the awards ceremony. They graciously accepted the offer. Unfortunately, it seems that this type of help isn't recognized by the students so much as by the faculty who barraged them with offers of drinks, bakery items, and even recommendations to their professors for extra credit - most of which was respectfully denied, but the beverages were too tempting to pass up.

Our two lucky SPS members are looking forward to the awards ceremony, and will even get to present some of the awards. They now have a better understanding and respect for lower level teachers and their students. Some kids really put a lot of time and effort into their work, and 8PS is glad to be there to praise them for their efforts. And maybe, just maybe the kids will even appreciate our efforts once they get over the excitement of receiving their awards!

Our third, and most popular, activity is the firing of our trebuchet. Two years ago the Society of Physics Students, with the help of the Medieval Society, researched and built a 20' high trebuchet. These particular machines were used from the 12th to the 16th centuries. We built ours to demonstrate some key concepts in mechanical motion. We also have 5' and 18" models to use for traveling demonstrations.

The best thing about our trebuchet is the impact it has on others. This machine, capable of launching cantaloupe approximately 170 yards, is infallible in its ability to capture the attention of children. With this, basic concepts of rotational motion and conservation of energy are easily displayed. In the past, busloads of children have come to see our trebuchet. We're also making an effort to reach out to the families of Marquette University students. Last weekend was MU's Little Siblings Weekend. We took out the trebuchet. It was a highlight of the weekend for those kids who were able to see it.

As one of our members explained the physics in simple terms, we launched cantaloupes, textbooks, shoes, pop bottles, milk, and the all time favorite - heads of lettuce. The kids loved the demonstration. Typically, once they had sat down, a kid didn't leave until the demonstration was completely over. Some of the older children (6+ yrs) were even able to help us. Two of the boys helped us prepare the trebuchet for launching, and some of the other kids took turns pulling the ropes that would release the safety and initiate the launch. Though the older kids had a better grasp of what was happening, the little ones appreciated the launches too. One little girl, about 2 years of age, was upset that day and only stopped crying during launches!

Using what we have to offer, Marquette University's Society of Physics students has done its best to reach out to the public - especially children. Bring out telescopes, judging a science fair competition, and doing demonstrations with our trebuchet, we have helped children learn to love physics. It is our hope that the curiosity that we see in children during our activities will continue throughout their lives, and that we have helped them to better understand the world in some small way.