

Marsh White Award Final Report

Drexel University – May 2008

This year in "Physics in Philly: Engaging and Enlightening Experiments for High School Students," our goal has been to continue to educate the students of Philadelphia and to spark interest in the sciences. At our most recent outreach event, several SPS members visited and performed demonstrations at a career fair at the Global Leadership Academy in West Philadelphia. Earlier in the year, our SPS chapter also held a major outreach event at the Drexel Physics Department's annual Kaczmarczik Lecture.

Drexel University SPS was able to arrange an outreach event with the Global Leadership Academy through the help of physics graduate student Travis Hoppe, who also helped in the demonstrations. The SPS members who participated in the trip to the Global Leadership Academy were undergraduate students Brian Cohen, Andrew Eshelman, and Sajjan Mehta.

The volunteers gave five presentations, each lasting approximately 20 minutes, to a total of around 150 children from fourth to seventh grade. The presentations consisted of demonstrations with liquid nitrogen, angular momentum, and the Doppler Effect. We demonstrated the effect of temperature and phase changes on matter by freezing flowers in liquid nitrogen and subsequently smashing them on a table, thus exemplifying liquid nitrogen's use as a cryogen; the kids loved it. We used three different experiments to explain the concept of angular momentum to the students; flipping a spinning bicycle wheel with handles while sitting on a spinning stool, changing one's moment of inertia while spinning, and holding one end of a spinning wheel with a string. The Doppler Effect was presented

using a "Doppler Rocket" football toy which emits a constant high pitched sound from which students can easily hear the apparent changes of frequency due to its movement.

Prior to the main Kaczmarczik Lecture, the Drexel Physics Department organized tours of the on-campus labs and buildings. Around 10 SPS members assisted the department by leading tours through the department and by hosting seven physics demonstrations in the undergraduate student lounge to over 200 visiting high school students. The students were shown demonstrations on angular momentum, Rube Goldberg machines, the Doppler Effect, and optics.

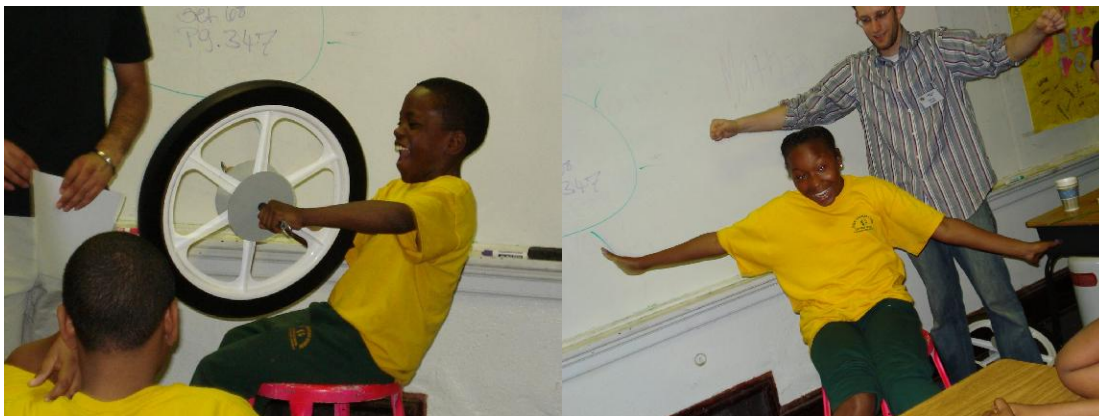
Our SPS chapter is planning additional outreach events for the upcoming year, including but not limited to a large on-campus demonstration in the beginning of the fall term, a set of presentations to be done during Science Week, a proposed collaboration with Drexel's undergraduate biology, chemistry, physics, and math societies, and several visits to local middle and secondary schools.

Expenditures:

Anti-Gravity Magnets	-\$30.00
Elastic/Inelastic Collisions	-\$06.00
Fuel Cell Car	-\$80.00
Optical Mirage	-\$40.00
Fire Syringe	-\$20.00
Superconductor Levitation	-\$77.00
Air pressure demo	-\$110.00
Lenz's Law and Magnets	-\$50.00
Total:	-\$413.00
Award:	+\$300.00
Additional Dept. Funding	+\$113.00
Balance:	\$ 0.00



Left to right: Travis Hoppe, Sajjan Mehta, Andrew Eshelman, Brian Cohen



Angular Momentum Fun





Freezing Roses



Brian explains the Doppler Effect

Liquid nitrogen on the playground

Kaczmarczik Lecture 2008



Amanda explains the Doppler Effect

Anna demonstrates angular momentum

Drexel SPS Physics Roadshow
Global Leadership Academy
Career Day 2008
Feedback Sheet

Please tell us what you thought of our roadshow! What was your favorite part?
What can we do to make it better?

Name:

Louis Palmer
Jahmere Goodman
Iyana Stewart

Helena Ferguson

Blair B.

Comments:

To love it, it
was cool we
should do ~~some~~ some
more

that was cool!!
I loved your presenta-
tion
It was very cool and
fun.

I think it was very
nice!

- Blair -
It was fun and
I had a great time.
Devin

Drexel SPS Physics Roadshow
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What can we do to make it better?

Name:

Kenyatta Hawks
Jamillah Thompson
Zaire Newman
Jana Smiley Aliga
Jibrel Lipscomb
Khalil Ashby
Brittanna Tompkins
Sharnice Johnson
Bernard Lipscomb
Kyree Vincent
Shahyil Murphy
Sudon Soss
Douglas Osborne

Comments:

I thought the experiment was cool!
The act was very exciting!
It was very interesting.
This presentation was quite interesting
This is cool.
I would love to do this man!!!!
This was very interesting.
I like it
It was cool,
to wonderful
It is cool
It was interesting.