



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh White Award Report Template

Instructions: Please complete each section after reading the purple text describing what should be in that section. Then delete the purple text.

Project Proposal Title	The Starch Difference
Name of School	Drexel University
SPS Chapter Number	1619
Project Lead (name then email address)	Mark Giovinazzi mrg96@drexel.edu
Total Amount Received from SPS	\$210
Total Amount Expended from SPS	\$209

Summary of Award Activities

The Drexel University Society of Physics Students hosted a booth at the Philadelphia Science Festival and engaged the public with an Oobleck demo. We used speakers as well as a mixture of corn starch and water to demonstrate non-Newtonian fluids and sound waves to adults and children of all ages. Along with the grant demo we supplemented our booth with a vortex machine, a pendulum wave, an angular momentum demo, and water beads.

Statement of Activity

Overview of Award Activity

Our speaker and Oobleck setup was fairly simple. We hooked up the speaker to a frequency generator and adjusted the frequency to our composition of Oobleck (two parts water to one part corn starch). Once we got the demo up and running we constantly replenished the fluid, as it dried out over time. We used saran wrap to protect the speaker with minimal damage to the equipment but still allow the speaker to have the maximal effect. When fully laid out, the Oobleck on the speaker “danced”.

We talked to all ages about not only physics, but future opportunities to be involved in science. From children as young as eight how to be a physicist when they grow up, to a representative of a Philadelphia organization How I Made It Over, we reached out to a fantastic crowd interested in science. SPS used the grant to further the public’s knowledge of the physics and inspired kids to learn more about what interests.

Roughly 5,000 people attended the science carnival, and our group spoke to many of them. Because of the nature of the Oobleck, ranging from “Watch it move it’s so cool!” to the nitty gritty mathematics of no-Newtonian fluid, we engaged a broad audience. Children watched how the buzz of a speaker, made the Oobleck make all sorts of interesting shapes. Teens and adults could question the science, or how to recreate the experiment at home. The wide audience helped our booth remain visited the entirety of the day.

Not only did we make contact with organizations outside our university, but also cultivated new relationships within Drexel. We spoke with the Women in Engineering group, and talked about some joint events, as well as improved our relationship with the physics grad student association. We had one of the largest volunteer turnouts in our recorded history, and drew in a few of the shyer freshman class. Our other large event, the Drexel Kaczmarczik Lecture and open house, has a whole new host of volunteers prepared for next year, due to the success of this project.

We had many great experiences come out of our Marsh White project. One of our volunteers said “Nearly every kid had a reaction of wonder, like you could visibly see their minds get blown away.” Another of our volunteers had a parent suggest they become the next Bill Nye the Science Guy. One child was so interested in the demo that he brought another kid to the table and explained the whole demo by himself. Not only did our chapter do well in education the public, but we had a lot of fun doing it!

Impact Assessment: How the Project/Activity/Event Promoted Interest in Physics

Despite some of our dates moving to accommodate the carnival and student schedules, our final production went off without a hitch! We managed a well-executed shift signup as well as a training for any member who wanted to become involved later in the event. We learned from our previous experiences and brought drinks and order lunch midday. Our volunteers remained happy and engaged the whole day because of our better organization and planning.

Beyond our chapter member's experience, we were met with a fantastic response from the carnival participants. Kids and adults alike gravitated toward our booth. Many asked all sorts of questions, ranging from as simple as "How does it do that?!" to "What is the mathematic behind the soundwaves force on the Oobleck?". Our chapter managed to not only promote physics and science, but made a lasting impression on people of Philadelphia.

We were busy for the duration of the carnival, with a minimum of 4 people at our booth at any given time. Beyond that, we made contact with multiple organizations and talked to a multitude of perspective physics students. The contacts and sheer amount of people we spoke to, prove us incredibly successful.

Key Metrics and Reflection

Please answer the questions below. Please indicate if a question is not applicable to your project.

Who was the target audience of your project?	Everyone
How many attendees/participants were directly impacted by your project? Please describe them (for example “50 third grade students” or “25 families”).	~5000 people (of those who attended the Philadelphia Science Festival). Including children and adults of all ages
How many students from your SPS chapter were involved in the activity, and in what capacity?	11 (5 in the morning, 1 in the afternoon, and 5 all day)
Was the amount of money you received from SPS sufficient to carry out the activities outlined in your proposal? Could you have used additional funding? If yes, how much would you have liked and how would the additional funding have augmented your activity?	Yes, we were sufficiently funded.
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	We will participate in the PSF next year A possible event at HIMIO
What new relationships did you build through this project?	How I Made It Over Women in Engineering
If you were to do your project again, what would you do differently?	We would make sure we had an easily accesable source of water, and protect the speaker more diligently

Press Coverage (if applicable)

N/A

Expenditures

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
Corn Starch	A key ingredient in our non-newtonian fluid, Oobleck--made from corn starch and water.	\$3.50
Speaker + Amp	We placed the Oobleck on the speaker that was wired to a frequency generator to display it's properties as both a liquid and a solid simultaneously.	\$170.00
Saran Wrap	To protect the speaker from being damaged by the Oobleck, we placed multiple layers of saran wrap between the woofer and the fluid.	\$3.50
Buckets + Lids	Used to hold water that would be used to create fresh stock of Oobleck when the current supply was drying out.	\$20.00
Misc. (Plastic cups, Plastic utensils, Paper towels, etc.)	These were used to create our supply of Oobleck during the festival as well as keep ours and visitors' hands clean.	\$12.00
Total of Expenses		\$209.00

Activity Photos



James Minock (our resident Oobleck magician) explaining non-newtonian fluids



Our dancing Oobleck



Sarah Coccia (our resident figure skater) explain our angular momentum demo



Women in physics' Pendulum Wave



If you have any questions, please contact the SPS National Office Staff
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