



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh White Award Report

Project Proposal Title	Let the Cat Out of the Box: Charlottesville High School Outreach
Name of School	University of Virginia (Charlottesville)
SPS Chapter Number	7751
Project Lead (name then email address)	Philip Velie pmv8ev@virginia.edu
Total Amount Received from SPS	\$129.50 received, \$259 granted
Total Amount Expended from SPS	\$238

Summary of Award Activities

Due to circumstances beyond our control, we were not able to carry out the proposed project involving high school outreach.

Instead, the Marsh White Award enabled the University of Virginia chapter of SPS to host a demonstration booth at KidVention, an annual family science festival organized by the Virginia Discovery Museum, and to subsidize physics-themed T-shirts for students at the University of Virginia in order to promote interest among students in studying physics and becoming more involved with our chapter. Through KidVention, our chapter was able to interact with elementary to middle school aged students and families in the local Charlottesville area, and hopefully pique young students' interest in the physical sciences.

Statement of Activity

Overview of Award Activity

Members of the University of Virginia chapter of SPS performed fun hands-on demonstrations at a booth at KidVention, a science festival organized by the Virginia Discovery Museum. These demonstrations allowed young children and their families to interact with physics concepts on a tangible level, making physics concepts accessible and helping these students and families become curious and excited about physics.

About a hundred families with children ranging in age from 1-13 visited the booth. In total there were three SPS members directly involved in the presentation and tabling at the event, and two other members involved in the preparation of the demonstrations. We worked closely with the demonstration technician at the University of Virginia to develop the demonstrations used at the Kidvention.

The three volunteers presented demos on electricity, magnetism, and non-Newtonian fluids. They tabled the event and each member was prepared to talk about one of the main demos. Demos included a capacitor, magnets on a dowel to show magnetic levitation, and oobleck for the kids to work with something fun, exciting, and hands-on.

One memorable anecdote is when the SPS Vice President performed a well-received demonstration involving discharging a large capacitor quickly and safely, producing a loud spark. This demonstration is flashy enough to draw crowds of a dozen people at a time as well as serving as an excellent demonstration of capacitors for the older children.

Volunteers wore physics-themed T-shirts designed by SPS at UVA, including shirts featuring Schroedinger's Cat and the spherical cow. Several Schroedinger's cat T-shirts were also given away as prizes. These shirt designs may have piqued students' curiosity, encouraged them to visit the booth, and ask more questions about physics.

Furthermore, the UVA chapter of SPS organized an end-of-year cookout along one of the main thoroughfares of the University. This event drew interest and questions from multiple passers-by. At this event, Schroedinger's Cat T-shirts and hoodies were sold at a 30% discounted rate, serving to publicize the physics program among UVA students. Twenty-one items were discounted, and each item with its curiosity-provoking design creates the opportunity for each wearer to open many conversations about studying physics with their friends and acquaintances.

Both these activities continue our chapter's work of promoting a career in physics and the study thereof to both physics students and the general public. Most of our chapter's programming is geared toward promoting involvement, excellence, curiosity, and community in physics among students already interested in physics. Outreach activities like these reach young people who have the potential to become physicists but have not yet discovered the field. It is perhaps due to the consensus that physics is unapproachable that makes outreach all the more meaningful, for people are instinctually curious beings and when presented by the persistent puzzle of our universe, we are naturally compelled to seek answers. Sparking interest in people of all age groups, but particularly young people, allows for an opportunity to combat the notion that studying physics is a feat for only the generational Einstein's and to open the doors for new scientists.

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

We were not able to use our proposed assessment plan due to scheduling issues with the schools. Since we had not previously held a booth at KidVention we were unable to compare this year's outcome with previous experiences. However, KidVention as a whole had record numbers this spring, totaling 1,459 people in the venue, over 1,270 of which were visitors. Additionally, this event likely reached a greater number of people than could have been reached during a classroom visit. In our proposal, we estimated we would reach 20 students in our high school outreach program, while our chapter's KidVention booth reached approximately 100 families. Due to the large number of visitors our chapter's volunteers were not able to collect exact numbers or feedback.

Discounted physics-themed merchandise was very successful based on the 21 items that were sold in one afternoon. Based on past experience, wearing this merchandise reliably leads to conversations about studying physics.

Our stated goals in our proposal were to allow students to interact with physics concepts on a tangible level, show students how physics concepts are accessible and at work in their everyday lives, and get these students curious and excited about physics. The demonstrations performed at the booth at KidVention, especially the sparking capacitor and the oobleck, allowed children to get their senses involved in physics. These demonstrations successfully made physics tangible and accessible to young students. Based on the crowds they drew, the demonstrations also successfully made students curious and excited about physics. The conversation-provoking Schroedinger's Cat T-shirts will also make college-age students curious, and hopefully excited, about the study of physics. These events, made possible by the Marsh White award, successfully promoted interest in physics among students and the general public.

Key Metrics and Reflection

Who was the target audience of your project?	Elementary school students (KidVention) and college students (subsidized T-shirts)
How many attendees/participants were directly impacted by your project? Please describe them (for example “50 third grade students” or “25 families”).	~100 families with children age 1-13 ~20 college students, ages 17-22
How many students from your SPS chapter were involved in the activity, and in what capacity?	3 students (Dawn Ford, Philip Velie, and Darren Upton) performed demos at KidVention. 2 others helped prepare demos. Other officers, incoming and current, advertised and sold discounted merch to increase engagement with physics.
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, the money was sufficient. No, we did not need additional funding for outreach activities this academic year. However, it is worth noting that were we able to do the high school outreach event planned, the sufficiency of these funds may have changed.
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	Yes, if KidVention is held again next year, we aim to host another booth. Our chapter also aims to continue outreach to local elementary school age students through intentional visits to elementary and middle schools with these demonstrations and T-shirts.
What new relationships did you build through this project?	We were able to build new relations with the organizers of KidVention, who we hope will invite us to host a demo booth in the future. We also built new relationships with families in the local Charlottesville and Albemarle area, especially those with small children who may have interest in STEM fields.
If you were to do your project again, what would you do differently?	In future semesters we will try again to perform outreach in local schools. Due to scheduling issues and miscommunication between our officers and local physics teachers, we were unable to complete our school visit. In the future we hope to improve planning and scheduling to successfully visit schools.

Expenditures

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
Gas	Transportation for volunteers to KidVention	\$15
Prizes (T-shirts)	Encouraged K-12 students to participate at the KidVention physics booth	\$44
Discounted physics T-shirts	Publicized the study of physics among college students	\$179
Total of Expenses		\$238

Activity Photos



2022-23 SPS at UVA President Philip Velie and 2022-23 SPS Social Media Chair Dawn Ford presenting demos and interacting with young children at the 2023 KidVention. Dawn is wearing the SPS merch. (Credits: Darren Upton)



2022-23 SPS at UVA President Philip Velie displaying one of the demonstrations at the SPS booth at the KidVention. (credits: Darren Upton)



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