



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh White Award Report Template

Project Proposal Title	Juniata's Physics Outreach: demo upgrades
Name of School	Juniata College
SPS Chapter Number	3392
Project Lead (name then email address)	Evan Ulrich Ulricen16@juniata.edu
Total Amount Received from SPS	\$500.00
Total Amount Expended from SPS	\$500.00

Summary of Award Activities

Juniata College's physics department has long been dedicated towards spreading the joy of physics to the surrounding community. This is done through outreach programs such as Physics Phun Night, where SPS members perform physics demos to many of the youth in the community. By upgrading our demos, we are able to create an experience that sparks the young minds in the audience. A new "bed of nails" was built, and many demos were performed to over 300 community members.

Statement of Activity

Overview of Award Activity

This project was dedicated towards upgrading our physics demo inventory. As well as having our major outreach event, Physics Phun Night, run smoothly. In term of upgrades, This included creating new demos and fixing older, well used demos. Two SPS members, Camden Kasik and Jarrod Gibson, were tasked with building the new bed of nails. This was in dire need as our previous bed was over 20 years old and many of the nails were bent and rusted, resulting in safety issues. This new bed will last hopefully for another 20 years of demos and Physics Phun Nights. These students, as well as others, also spent time building a light brite, which will hang in our physics wing and be brought to enhance our physics outreach programs.

Overall, this project allowed us to hold yet another successful year of outreach and community engagement. Our club has been very active in the community, and we hope to continue to be so for many more years. We have been able to create exciting, fun, and interesting demos for the youth in our area while stressing safety and good practices. Over 300 children, parents, and some interested political science majors came to our blockbuster event: Physics Phun Night held on campus. Close to 25 physics students (all SPS members) helped out with the event to make it a success. 15 Students performed demos, 3 Emceed, and others worked behind the scenes creating flyers and posting information of the event at local schools and businesses.

Our target audience, elementary and middle-school aged students, had a blast at this event. It was amazing seeing the kids faces light up with excitement and curiosity as rockets flew over their heads and huge clouds formed in front of their eyes. As stated before, over 300 people were impacted.

Our goal in Physics Phun Night is to promote physics to the wider community and get the youth excited for science. Physics can be seen as an intensive, almost impossible subject that is all theoretical. We hope to inspire the future generations towards the idea that physics is fun, rewarding, and cool! By showing this to the youth, we hope to increase diversity and excitement within the field. Our goal as an SPS chapter is to promote physics to everyone, and include everyone. We hope that our actions are doing that.

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

Our goal was exactly that of this award: “to promote interest in physics among students and the general public.” This we hope to do every year. This year, we believe we have met this goal. Through Physics Phun Night, (as well as several other smaller events) we were able to reach over 300 community members and show them the joy of physics. We had a full house, meaning our flyers and signs that were placed around the community were successful. Also, the program lasted an hour and a half with most members of the audience captivated by the interesting occurrences held on stage. For another half hour after the event ended, a crowd of curious children were able to talk with us and get some hands on experience and a close up look on several experiments. We had strong engagement with the audience, with many children asking questions and taking part in the demonstrations. This gives us reason that our program was very successful and informative. Hopefully our actions were able to give the youth curiosity towards physics, and maybe one day they will pursue a degree in this field!

In terms of the assessment plan, the outreach events were spearheaded by the SPS officers— Camden Kasik, Evan Ulrich, Hope Greenspun, and Tristen White. We all worked closely with Dr. Borgardt, our SPS advisor, in creating the program, designing flyers, and obtaining all of the necessary equipment. This made our event run smoothly. Our demo upgrades are still underway, as we continue to build the

light brite. Next year and further in the future we hope to continue expanding and upgrading our slew of demos. This will result in many more years of successful outreach!

Overall, our project was a success: we were able to get 25 SPS members involved in outreach, over 300 community members took part in our events, and we were able to get even more involved in the community this year by doing some physics demos at the local library during a children's event day there. We were able to promote physics to the general public and have fun while doing it! We had a successful year!

Key Metrics and Reflection

Who was the target audience of your project?	K-6th graders, as well as parents
How many attendees/participants were directly impacted by your project? Please describe them (for example “50 third grade students” or “25 families”).	Roughly 40 families 50 college students (over 300 participants)
How many students from your SPS chapter were involved in the activity, and in what capacity?	25 students: creating/performing demos, emceeing,
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?	The money was sufficient, although further funds were provided by the department. Our main priority was obtaining funds to create a new bed of nails which is a well loved demo for participants.
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	Yes. We have Physics Phun Night every year—and we have begun even more outreach opportunities such as mall physics and library physics. (we perform demos at public places in the community)
What new relationships did you build through this project?	We have been able to reach the youth, and parents keep bringing their kids back every year. Our main message is to show that physics is for everyone!
If you were to do your project again, what would you do differently?	Everything ran smoothly, we would not change anything.

Press Coverage (if applicable)

Local news station coverage on Physics Phun Night. A reporter came and gave interviews, as well as took pictures and videos of several demonstrations. (The specific demo shown here is the smoke ring vortex cannon.) Our very own SPS president Camden Kasik also being interviewed:

<https://www.wearecentralpa.com/news/students-at-juniata-college-show-kids-how-fun-physics-can-be/1932111472>

Expenditures

Money was spent on buying plywood and nails, which were used to build a new bed of nails for a pressure and weight distribution demonstration. The major expenditure, the liquid nitrogen (with a tank rental) allowed for us to perform LN2 demos which are a crown favorite. Finally, the funds also went towards colored plastic rods which are used in creating the light brite. Flyers, signs, and other demo materials used in our program were paid for by our physics department.

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
Plywood and nails	Used to create a new bed of nails. (approximately 6'x3') Our old bed was getting quite old, with many nails bent and rusted, resulting in safety concerns.	\$200.59
Liquid Nitrogen and Tank Rental	Necessary for the many demos we performed during Physics Phun Night	\$212.15
Plastic Rods	Used to create a lite bright, which will be used in future demos	\$125.14
Total of Expenses (This exceeds \$500—department covered extra costs, and for other supplies not listed)		\$537.88

Activity Photos



A nice crowd has gathered for Physics Phun Night! Taking place in the newly renovated Alumni Hall on campus.



Freshman SPS member Thomas Cope and Dr. Borgardt explain conservation of energy through a pendulum demonstration with the help of an audience member.



Rob Kauffman, a.k.a. "Dr. Lightning" is here explaining static electricity to the youngsters.



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