



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh W. White Award Proposal

Project Proposal Title	Lab For Kids
Name of School	Adelphi University
SPS Chapter Number	0020
Total Amount Requested	\$300

Abstract

Annually, our chapter has the good fortune to work with Westbury High School and the Cradle of Aviation to promote the spirit of experimentation and physics education to students through a series interactive, informative, and fun physics-related projects and experiments.

Proposal Statement

Overview of Proposed Project/Activity/Event

Lab for Kids is an event we've done at Adelphi annually with our previous chapter director Sean Bentley. For this event, we invite students from Westbury High School to the local aerospace engineering museum The Cradle of Aviation for a day of exploring physics in a series of interactive labs and projects. Westbury High School is a bit of an anomaly since students have the option of taking physics in their freshmen year (when it is typically reserved to upper classmen). They will make up the bulk of our audience. In the past, we have had around 50-70 students attend this event.

Our event will be organized into five stations that last about 30 minutes each so that each student gets the opportunity to explore many areas of physics. These include:

- Optics Station—Students will have the opportunity to see the laws of reflection and refraction in action. We bring several lasers from our optics lab and a refracting medium so they can easily follow the paths of the beam and the geometry that lies beneath what's happening. It's very similar to the same project undergraduates do in their freshmen labs.
- Circuit station—Students will get the chance to build and test their own circuits. After explaining the theory behind the wires, we supervise them as they build a simple circuit that lights a bulb
- Van de Graaf Station—A favorite among students and undergraduates, we offer high school students a look into the fascinating world of electrostatics in a “shocking” display. We invite the students to experiment with static electricity and tell them a little bit more about other things about electromagnetism.
- Build your own electric motor—Part arts and crafts, part engineering, we teach students more about electric motors and how to build one using some common materials.

How Proposed Activity Promotes Interest in Physics

The goal of Lab for Kids is to promote the study of physics as something exciting that has immediate real world applications to students. It's very easy for students to get lost within the definitions, and theories, and calculations (not to mention all the homework). We hope with this event that students will get a taste what physics means to us. Physics isn't just some difficult class that we dread everyday, it's a way of life, it's our job, and overall, it's what gives us enjoyment out of life. We hope that our event gives students some insight about how rewarding physics can be when it is presented in another way.

Granted, when we first ask students the question “how do you like your physics classes?” we normally get answers like “hard” or “boring!” But never once in my four years of participating in this project do I see a student who doesn’t end up loving our event and leaving with a smile on their face.

We believe that leaving these students with a good time, an informal lecture, and a nice take-home project will leave them with a different perspective of physics than what they take home from class.

Plan for Carrying Out Proposed Project/Activity/Event

We are lucky to still have a wonderful relationship with an Adelphi alumnus who just happens to be the physics teacher of Westbury High School, Mrs. Patty Trongone. Our executive members (listed below) will collaborate with her and the director of the project, Brumsic Brandon, to tell the students about the event. Our chapter adviser, Dr. Matthew Wright, will also advise us and assist us in planning the event.

We are offering the opportunity to all of our active members. In the past, we have had around 10-15 volunteers at this event (about 2-3 per station). However, we have a much bigger member base this year so we hope we can attract more members to assist us. Adelphi SPS E-board, in charge of planning and coordinating event:

- Brian Kaufman—President
- Michael Fernez—Vice President
- Jessica Scheff—Secretary/Co-Vice President
- Anthony Limani—Secretary
- Stephen Ho—Treasurer

Project/Activity/Event Timeline

This event will be held sometime in the Spring—most likely in April. We won’t have exact details as to the date of our event until Westbury High School decides what is convenient for them and their students since they need to be bused to Cradle of Aviation. With that being said, planning will begin as soon as possible and will be conducted as follows:

- By 2/10: We will have placed calls to Westbury High School to begin the conversation on the event and find a date
- By 2/28: Reserve space at the Cradle of Aviation Museum for the event.
- By March 14th: Have an exact and detailed schedule of what labs we will present to the students. We may add or remove stations depending on availability.
- Mid-April: Our event begins!

Activity Evaluation Plan

Getting direct feedback from students is most important to us to evaluate our success. Due to the informal nature of the experience, our members will have the opportunity to talk to the students and ask them their opinions on their experience with physics in and out of the classroom. They in turn, get the opportunity to learn more about life as an undergraduate physics student.

In addition, though no less important, hearing the teacher's evaluation (and the principal's) is crucial to evaluating our success. She is generous enough to offer her class time to allow these students to come out and learn physics in a very different way. We don't want to waste her time or the students'. We intend on establishing a close relationship with her and to stay on top of any comments or complaints she may have.

Budget Justification

The funds will be primarily used for ordering materials for individual projects. Many of our demonstrations such as the Van de Graaf generator or refraction lab are already owned by the university. However, we want to offer the students something they can build and take home as well—an engineering project if you like.

One project we've come to like over the years is building a simple electric motor. The project is simply a battery, a coil of wire, and magnet (as well as an apparatus to hold it all together). More details are provided in the attached budget.

This is the limit of our monetary needs to make our event a success.