



# SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

## Marsh White Award Proposal

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Project Proposal Title	Lab for Kids
Name of School	Adelphi University
SPS Chapter Number	0020
Total Amount Requested	\$500.00

### Abstract

Every year the Adelphi University SPS chapter conducts Lab for Kids as an outreach program. We go to and invite underrepresented high and middle school physics students to the department for a day of creative and interactive physics experiments, fun demos, and lab/department tours. Students from our department volunteer and make this event successful each year.

# Proposal Statement

## Overview of Proposed Project/Activity/Event

**Brief Description:** On multiple occasions every year, the Adelphi physics department hosts an outreach event called Lab for Kids. For these events, Adelphi physics students and staff visit local high schools, or the physics department hosts high school physics students. The Adelphi physics students run various lessons with the high school students. Such assignments involve waves, polarization, angular momentum, sound, and more! The studies are established and rehearsed before each event. The purpose of these lessons is not just to educate the students, but to promote excitement for physics - all the while benefiting the image of Adelphi and its physics departments in the eyes of future college students.

**Goals of the Project:** In hosting these events, we aim to employ exciting, hands-on activities and lessons to promote excitement and appreciation for physics. Additionally, this will have the effect of benefitting the image that these students have of Adelphi and its physics department. We usually do it with Westbury High School, Holy Trinity High school, North Shore, Central, Islip, Commack High School, John Adams High School (Queens), Manhasset High School, and Plainview High School but we do it with Westbury High School the most.

**Intended Audience:** The intended audience is high school students enrolled in physics courses. Each event involves teaching multiple classes, one after another, each containing anywhere from 20-30 students. Although we run these events for high school students, we sometimes run pseudo-Lab for Kids events that are open to any interested high school students. During these occasions, we often welcome younger students into our department and run more simple events to cater to them.

**Background and Motivation:** The feedback from all parties involved has been overwhelmingly positive. The teachers observe the benefits of Lab for Kids and invite us to return regularly. The students can be seen laughing and grinning in comradery as their classmates volunteer to participate in physics demonstrations. The Adelphi students who run these events find pleasure in sharing their love and passion for physics with the next generation of students.

## How Proposed Activity Promotes Interest in Physics

Physics has slowly become an integral part of the world around us. We would like to continue developing this fundamental STEM field through our proposed program, "Lab for Kids." In our program, our goal is to get high school students involved in the concepts of Physics and get hands-on experience. Through our various interactive and exciting physics demonstrations, we can showcase to students the beauty of the different parts of physics. This will give them a push for their continuing interest in this field, which can ultimately lead them to find a new passion. Through "Lab 4 Kids," high school students can explore the art of physics in more depth if they haven't had the opportunity to do so in the past.

## Plan for Carrying Out Proposed Project/Activity/Event

**Personnel:** Executive board members and SPS will monitor the progress to ensure that all members have completed their assigned tasks before the project. We will communicate with the high school and associated staff to secure a date and time that satisfies both parties. Next, we will coordinate each physics demonstration and assign it to the different volunteers. We are providing

training to ensure that our members are prepared to work and present their assigned station, helping them understand the physics topic. On the day of the event, there will be a fixed number of volunteers working in specific stations with a group of students to ensure the efficiency and enjoyment of the event.

**Marketing:** Ensuring participation in the event, the promotion will be administered. We will promote them externally by contacting the high school to have students aware of the project and provide an opportunity to learn more. Students within our university will also be notified of the opportunity to volunteer with our executive board members in the project. Students outside of the physics department are also encouraged to volunteer for the project.

**SPS Member Participation:** The expectation is close to 25-30 students from the associated high school to attend the event. Our volunteers will be around 10 non-executive and 5 executive members at the event. The volunteers will teach and perform experiments with their assigned students.

**Expertise:** Several participants will have prior experience in the running of the event. The members will help ensure the success of the event due to their being experienced and knowledgeable to prepare new members. All members are actively involved in the project and perform their tasks to the best of their ability by training and working together.

## Project/Activity/Event Timeline

We consistently hold projects year-round, but this is what a general timeline will look like for any of our projects: We typically like to do more events in the spring, but we have some teachers who have been using our services for a very long time and want us to come back in the fall. We always start by reaching out to teachers and schools we have worked with in the past, as we want to create a long-standing relationship with high schools. We do try to continually reach out to new schools (especially ones from which our students come, it creates passion). Once the school responds back to us showing an interest, we then start with picking from our bank of experiments, teachers will usually want us to do experiments related to material that they cover in class, AP Physics classes typically ask for experiments beyond the scope of the course to generate interest. Once we communicate what exactly we want to do for the school, we then look for a date. Once we have the experiments, date, and time set, we will reach out to prospective volunteers via email and a sign-up sheet/form, in which about two students will run and oversee each activity. The potential volunteers will then receive a training session for the activity they will be working on about a week or two before the project date so that they know and understand the information about each activity as well as the knowledge needed to use the necessary equipment.

## Activity Evaluation Plan

This outreach event aims to bring out the latent talent and Physics interest the high school or middle school students have. So the participant students can put valuable feedback than anyone else. Monitoring the participations' behavior, and their excitement level as they perform the experiments can be used as an excellent source of feedback. It lets us know about the experiments; which ones were more challenging, which ones were easy and fun, which interest the kids more, and which are engaging. We can also observe their responses and the time it takes for them to get to their responses to our explanations and questions. Asking them to fill out a form with questionnaires about their thoughts and about how they felt can also give us great feedback. Their teachers know them better than us so we can also ask their teachers for their feedback. This feedback will help us improve our future Lab for Kids event as we can then plan according to their feedback. We will take attendance of volunteers and participants. This will help us monitor underrepresented students' participation as offering Physics experience to underrepresented students is one of our goals.

## Budget Justification

Lab 4 Kids is an event where kids can do hands-on activities in the name of physics. These activities will require materials for the kids to get the full understanding and the best experience associated with each activity. We are requesting \$500 to purchase batteries for DC motors, Hemoblle Optical 3D Lens for Magnifier, cardboard tubes, Translucent Paper, 3.5" framing Nails, 4'x4'x3/16' tempered service, plywood 1/4", plywood 1/2', and pizza. We would use the batteries to make DC motors. The diffraction glasses are needed for the kids to see diffraction happening around them! The wood and nails would be used to make a nail bed. The translucent paper would be used to make holograms. The cardboard tubing and the Lenses would be used to make a periscope. The pizza will be used to feed the volunteers working with the students during the event. The equipment we would purchase allows us to provide a tactile, fun, hands-on experience that would encourage high school students to pursue STEM careers and spread that enthusiasm to their communities.