



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh W. White Award Proposal

Project Proposal Title	Fun with Physics
Name of School	The College at Brockport, State University of New York
SPS Chapter Number	6794
Total Amount Requested	296.80

Abstract

The SPS chapter at The College at Brockport; SUNY is planning to expand our physics outreach events. It is our intention to plan and execute a demonstration for high school level students that will help motivate students to think about the interesting aspects of the science that most students find intimidating.

Proposal Statement

Overview of Proposed Project/Activity/Event

“Fun with Physics”

This is somewhat of a continuation of some outreach events that we have done in the past. Previously, we have done the following outreach events;

- Taken physics themed toys to “Physics of Toys” events at the local public library for young children
- Done physics demonstrations at local elementary schools
- “The Physics of Angry Bird” demonstration
- Toy Demonstrations for our campus community

What this project would do is fill the “gaps” in our outreach audiences. High school students are most often turned off by the idea of physics because they are either in the course and don’t like it or they associate physics with too much mathematical concepts.

It is in “Fun with Physics” that we wish to bring out the passion for physics in high school students by showing them just how much they use physics on a daily basis in activities that they enjoy. In a sense, we would like to make physics look “cool”. To do this, our main focus will be on waves and optics. A main portion of the budget will be spent on investing in a laser light show. Music and lasers will immediately get the student’s attention. We will make sure there are no health problems regarding the lights before starting the show. The idea is to show them something they think is fun and cool, and then enthusiastically explain how lasers work. The explanation will be done by using smaller laser demonstrations and a small presentation by a member of the chapter. Since music is normally a pretty popular topic, we will follow our optics “lesson” with one regarding waves and sound.

This is an event that we wish to expand every semester, gradually adding in either more demonstrations of optics and waves, or by incorporating more areas of physics that will be appealing to students.

How Proposed Activity Promotes Interest in Physics

Physics is notoriously difficult to not only understand, but also to get students interested in. It is a common misconception that because physics is sometime hard to grasp that the concepts aren’t interesting. Our “Fun with Physics” program will be designed to not just teach students physics, but get them interested in it while sneaking in the “learning” as fun activities and demonstrations.

Plan for Carrying Out Proposed Project/Activity/Event

- Personnel – The president of the chapter, Amanda Landcastle, who is indeed an SPS member will be heading the project. Chapter members will be responsible for planning the show and organizing the activities in such a way that the show will “flow” well. Progress will be monitored at weekly meetings, and e-mail will be used to share important documents. The president of the chapter will keep a checklist, with the intension of getting a certain number of things done every week.
- Marketing – We are planning on contacting local high schools to see if we could come to the school and give the presentation. If by chance this is not possible, we would advertise to the local high schools and encourage students to come.
- SPS member participation – Our chapter has 2 SPS members, and both will be playing important roles in planning the event. We are also encouraging other chapter members to sign up for SPS, and they would then be encouraged to be more involved in the planning process.
- Expertise – Our advisor will be watching the chapter as the event is planned. He has done fun physics demonstrations in the past (like “The Physics of Spiderman”), and he will make sure the event is on the right path.

Project/Activity/Event Timeline

Note: dates may be shifted depending on when the funding is available to use. In any case, we will prepare for the presentation as much as we can without having the demonstration materials until they are ordered and received.

Expected Event Date: April 9th 2014

To get done:

1. Wednesday April 2nd – Complete practice presentation
2. Wednesday March 26th – have the short PowerPoint presentations completely finished and have members assigned to give them.
3. Wednesday March 12th – Second “Rough draft” practice presentations to correct enthusiasm and body language of presenters
4. Wednesday February 26th – Have all of the demonstrations categorized and be able to explain them.
 - a. Pick music
 - b. Assign demonstrations to groups of chapter member
 - c. Figure out the proper timing for all demonstrations and explanations
5. Wednesday February 19th – All members give research on lasers and waves and we decide the best way to explain the concepts to high school students. First “Rough draft” practice.
6. Wednesday February 12th – Have demonstrations and materials on their way and start thinking about the organization of the show
7. Wednesday February 5th – Order demonstrations and materials.

Activity Evaluation Plan

To evaluate the project's success, we will look at a few aspects.

1. Participant enthusiasm
2. Participation – do the students ask questions, or answer questions that we ask
3. Input for teachers that attended
4. For future reference, if we are invited to come back, it must have been successful.

Budget Justification

The Laser Theater will be used to get the students interested. It will lead into a discussion on lasers and optics by a member of the chapter. This is where the laser viewing tank will come in. We will use this to show refraction, total internal reflection, etc. We have some demonstrations in the chapter already that we will use to introduce sound and waves. The sound pipes and singing rods will demonstrate resonance. The spring wave will show the transverse waves and longitudinal waves. The Doppler ball will demonstrate the Doppler effect.

The department will provide the laser for the laser viewing tank. We are also borrowing a high quality live stream web cam from a member of the chapter to make some of the demonstrations more viewable from the audience. Additional money will be asked for from our student government to cover tax, shipping, or additional materials that may be needed.