



SIGMA PI SIGMA

The physics honor society

Sigma Pi Sigma Chapter Project Award Proposal

Project Proposal Title	Enlightening our Future
Name of School	Utah State University
Sigma Pi Sigma Chapter Number	7579
Total Amount Requested	\$500.00

Abstract

One of the most over looked faces in physics is our elementary educators. Our chapter proposes to help our educators prepare to teach science more effectively by creating a SOCK type program which involves writing up demonstration lesson plans, and distributing them along with supplies to students studying to become elementary school teachers so that they can perform at least a few demonstrations.

Proposal Statement

Overview of Proposed Project

Our project will consist of a written up lesson plan detailing the science behind three demonstrations, most of the materials required to perform the demonstrations, and a link to our chapter website where we will have a list of other demonstrations that they can perform in their classrooms, and what supplies are required to do the demonstrations. Included in each of the lesson plans will be a reference to what it teaches in the required science curriculum. For example:

Lightbulb kit : Kindergarten: light

Third grade: electricity

Fourth grade: scientific method

We plan to include the materials required to build a homemade lightbulb (baby food jar, wire, alligator clips, pencil lead, 9V battery), the materials to make a potato lightbulb (penny, lightbulb, pencil lead) and the materials to make an engine (9V battery, magnet, wire). All of these things with the instructions will be given to the future educators. We hope to distribute 100 of the kits.

The Goal of the project is the same goal as every outreach event; to get a group of people excited about science, and to help them believe that they can do science. The hope is that after bringing kits to educators they will feel more confident in their scientific abilities and be more willing to do demonstrations in their future classrooms.

The Intended Audience while not immediately apparent as being culturally underrepresented in physics are the future elementary educators currently studying at Utah State University. The Majority of Elementary Education majors at our university are women, thus a minority in the scientific community. While they will probably not ever receive a Nobel Prize, their elementary school teachers, they are the future face of physics. They will be the first experience many of the future generation will have with physics, and I hope to make it a positive one.

The reason for my passion in this project can be attributed to my close association with the Physics 1200 course (the physics class required for all elementary education majors.) I have taught the lab for the class and been the TA for 3 years now. Through my experience I have noticed that many of the students have never considered performing a scientific experiment in their lives. The last time they sat down and asked why does that work, or what if I combined these two things was probably their elementary science fair. It terrifies me personally that people of this caliber will be educating our future generations. It is my hope that through the use of our personal SOCK kits we will be able to enlighten their minds as they will enlighten their future classrooms with homemade lightbulbs.

There is a fear that the kits will go unused, that the students will get them, and then put them into a box somewhere and forget them, luckily Our chapter has been focusing on doing outreach to this science class of future teachers, and we plan on the day that we distribute the kits to have a general demonstration to show how each of the demonstrations is done, and encourage each of the students to go home and show it to their

roommates, that way even if the kit is lost the knowledge of the demonstration is there and in the future the students will be able to reassemble the demonstrations for their students.

How Proposed Project Meets the Purpose of the Award

As more and more different cultures begin to move into Utah a greater opportunity is found to reach all of the different cultures through the public education system. While it is true we could pinpoint one particular culture and try to specialize one thing to work with them on, it would seem that we can reach more people of different cultures if we were to create a program that helps those that interact with each of those cultures already. Creating enlightened educators with good science lesson plans will influence and help all of the students especially those of different cultures. While a student may not speak English very well, when he sees a teacher create a lightbulb with nothing more than a 9 volt, a baby food jar, and some pencil lead that will teach him far more about science than will a days lecture. It will transcend language barriers to educate.

Plan for Carrying Out Proposed Project

The person in charge of planning the event will be Phil Lundgreen, progress of the event will be monitored in our weekly SPS meetings. We have already spoken with the professor for the physics 1200 class and she thinks this is a great idea, we hope to be able to create a flyer to have her display in her class for a week before we plan to bring the kits. We have also talked about including our chapter email in the kit asking for pictures of people using the kits so that we might be able to post them on our website. We should be able to get at least 20 members together for a “kit assembly party” on some Saturday, and then we plan to have at least 10 members for the distribution and training day to go around and answer any questions that the students might have. Our success will be ensured by having each member of our chapter write up a lesson plan, and present it so that we might be able to have a useful demonstration guide to present to the students.

Project Timeline

Feb 17 follow-up return to class and ask for pictures/ask how it went

Feb 11 Presentation of Kits to Students

Feb 1 Kit Assembly Party

Jan 29 write lesson plans

Jan 22 Write Lesson plans

Beginning of January order components from internet

Project Evaluation Plan

Success in this endeavor will be measured in two fold ways, first by having members of the club write up lesson plans and demonstration instructions which can be used both by the teachers as well as by our chapter to distribute when we go and visit other schools. We will also be able to gauge our success if we are able to receive pictures of the students using the sock kits, we probably won't see them using the kits with their future students, but we can get pictures of them impressing their roommates.

Budget Justification

Our budget is justified because we have to buy the things which we are going to put into the kits, people will be more inclined to perform the experiment if they don't have to track down all of the things that they will need to perform it. If they all most the things they need right in front of them they will be willing to do it. We have also had to suggestion to charge a dollar for the kits partially to help with funding the kits, but mostly to insure that the students have something invested in them, and will find more value in the kits that way.