SOCIETY OF PHYSICS STUDENTS
An organization of the American Institute of Physics

Marsh White Award Report Template

Project Proposal Title	Elementary Physics Videos
Name of School	Texas State University
SPS Chapter Number	6682
Project Lead (name then email address)	Gregory Beuhler – gb1124@txstate.edu
Additional Project Leads (two lists: names then emails)	Jessica Conn – jconn@txstate.edu Patrick Lisk – pl1070@txstate.edu
SPS Chapter Advisor	Dr. Dave Donnelly
Total Amount Received from SPS	$220.00
Total Amount Expended from SPS	$42.00

Summary of Award Activities

Elementary Physics Videos is about collaborating with local elementary schools to produce short videos demonstrating and explaining certain physical principles. With the Marsh White Award, the Texas State University SPS chapter was able to film two videos; one demonstrating air density using balloons filled with different gases and a second demonstrating pressure by imploding a 55-gallon drum. The videos include an experiment, explanations, and animations to enhance discussions and will be posted to our SPS chapter's Youtube channel to be accessed by local elementary science teachers.

Statement of Activity

Overview of Award Activity

Our *Elementary Physics Videos* project set out to film two short demonstrations explaining certain physical concepts to be used by local 5th grade elementary science teachers. The first video demonstrates the differences in air density of gases (Kr, N, and He) by dropping balloons filled with each gas. As the balloons fall, the presenters explain the concept of density and molecular weight, along with animations illustrating molecular movement. The video concludes with a further demonstration of density by floating a foil boat in an aquarium filled with Sulfur Hexafluoride. The second video demonstrates the effect of air pressure and the effects of temperature on air pressure. The presenters begin by heating a 55-gallon drum over a fire with water filling the bottom. Once the water is converted into steam inside the drum, the presenters carry it to a kid pool filled with ice water. As the steam inside the drum condenses, the pressure inside decreases causing the drum to implode, rather dramatically. Animations and explanations are again used throughout the video to reinforce core ideas.

In each video, the presenters allow the teachers the opportunity to pause before the next phase of the demonstration. This is designed to encourage group discussion among the students, making predictions and discussing why or how the result occurred. With many funding issues in public schools, we feel this is a great chance to provide exposure to experiments and the scientific process, especially in an underdeveloped district. This type of outreach has become a staple to our SPS chapter here at Texas State University and we hope to continue to provide these opportunities for young, aspiring students.

Currently, we are finishing that last edits and animations. The videos will be uploaded to our chapter's YouTube channel and will be implemented by Travis Elementary School in the 2014-2015 school year.

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

Our main focus with this project is to bring more intense experiments to elementary students in schools who do not have access to the resources. We are in close contact with teachers at Travis Elementary School and have discussed which experiments would enhance and collaborate with their curriculum. The end goal of the project is to post our videos to a YouTube channel and have the teachers access the videos during the 2014-2015 school year.

As of now, we are making the final edits on the videos and plan to discuss the finished videos with the teachers to make any adjustments they see needed. After we get approval from the Travis Elementary science teachers, we will upload the videos to our SPS YouTube channel so that teachers and students alike can access

the videos at school or at home. If the faculty and students like the results from our initial two videos, we plan to keep making videos for many school years to come.

Key Metrics and Reflection

Who was the target audience of your project?	5th Grade Elementary Students
How many attendees/participants were directly impacted by your project? Please describe them (for example "50 third grade students" or "25 families").	112 5th Grade students
How many students from your SPS chapter were involved in the activity, and in what capacity?	6 students assisted in filming, presenting and planning these videos
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 funding was sufficient. No additional funding was required.
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	Certainly, we hope to expand our video library, adding new demonstrations at the suggestion on local schools.
What new relationships did you build through this project?	We built a great relationship with Travis Elementary School, allowing us to assist in science fairs and additional videos
If you were to do your project again, what would you do differently?	We will consider upgrading our video and sound quality.

Press Coverage (if applicable)

Expenditures

Expenditure Table

Item	Cost
(2) 50 Gallon Drums	$20.00
Balloons	$2.00
Total of Expenses	$42.00

Our expenses were significantly less than originally expected. The univeristy lent us a glass aquarium, which freed a lot of budget space. All software to edit the videos was open sourceware and free. Our main expenditures were the 50 gallon drums at $20 each and balloons. Everything else used in the videos were department resources, such as the various gases and the kid pool.

Activity Photos

Please include captions and credits for each photo. By including photos below, you are giving SPS and the American Institute of Physics permission to use these photos in their online and printed publications.

If you have any questions, please contact the SPS National Office Staff
Tel: (301) 209-3007; Fax: (301) 209-0839; E-mail: sps-programs@aip.org