

## Marsh White Award Report Template

Project Proposal Title	Hollywood Physics 2.0
Name of School	Drexel University
SPS Chapter Number	1619
Project Lead (name then email address)	Robyn Smith – rns46@drexel.edu
Additional Project Leads (two lists: names then emails)	Cameron Petersen* – cmp377@drexel.edu Jeremy Gaison – jkgaison65@gmail.com <small>*Cameron is the actual project lead, Robyn is simply handling submissions</small>
SPS Chapter Advisor	Dr. Luis Cruz Cruz
Total Amount Received from SPS	\$179.00
Total Amount Expended from SPS	\$94.00

## Summary of Award Activities

The proposed project, Hollywood Physics, for Drexel University's Chapter of the Society of Physics Students, utilized how movies portray physics to teach concepts, from angular momentum to electricity and magnetism, to students and children in the community. Students were shown clips from popular movies and asked whether or not they believed what they saw in the clip could happen in real life or not. After answering, a demonstration was performed on the concept to prove or disprove the clip. Students and children came in and out of our tent and hopefully took with them some of the physics concepts they learned about.

## Statement of Activity

### Overview of Award Activity

#### Brief Description:

The project took place at the Philadelphia Science Festival where we had a tent. In the tent we had a table where a laptop was setup so that we could play clips from popular movies to show good and bad physics. We had an angular momentum chair out on the sidewalk to demonstrate the conservation of angular momentum in the movie Ice Princess. Inside the tent we had a Plasma Ball set up to demonstrate how a tesla coil works, like in the movie The Prestige. We also would setup a chair and drop parachute men with different sized parachutes to show that Batman's Cape would not be able to hold his bodyweight based on surface area.

#### Outcomes:

The project was able to engage students, children, and families by linking the movies that they enjoy in theatres and the laws of physics in the real world. Forcing people to think about the movies they watch causes them to have make an educated guess on what would really happen, and if they did not know what would actually happen, we were there to demonstrate the laws that govern what happened.

#### Audience:

The target audience was for school aged kids and under, however, there were many families and even adults that learned some basic physics concepts. Approximately a hundred or more people came through our tent throughout the day and most if not all at least learned something about physics they had not known before. The goal was simply to get people thinking about how physics works in the real world and that goal was definitely accomplished.

#### Context of the Project:

In class we learn many of these physical laws, and the department uses them every day when teaching and doing research. Not everyone is required to learn about these laws, so this is where SPS steps in a teaches, mainly to students, but also to the general public about the physical laws we learn about in class.

#### Highlights and Stories:

The main highlights of the event were whenever children smiled after pulling there arms in, on the angular momentum chair, and seeing how much quicker they moved.

### **Impact Assesment: How the Project/Activity/Event Promoted Interest in Physics**

#### Project Goals:

- To engage students with Hollywood Movies portraying good and bad physics.
- To connect with students interests in movies and relate the concepts to physics.
- To prove and disprove the physics in these movies, teaching the students why.

#### Assessment Plan:

To assess ourselves on how well we performed the desired event, we needed to take into account what they were learning. First, we attempted to engage the students by showing clips from movies

they probably have seen. This started with most students saying they knew the movie, or they remembered the scene. Next we would ask the students if they believed what was happening in the clip could happen in real life. This forced the students to make a hypothesis about what was happening in the clip and whether or not it was plausible in the real world.

### Results:

The event took place at the Philadelphia Science Festival, and our audience included families, students, and even young children. Thanks to the popularity of the movies we chose we were always able to converse with the people who came into the tent on something familiar to them, and through this we were able to begin making them think about the physics that was involved in the movie. Many students, and children participated in our experiments and we believe seemed to definitely understand concepts like conservation of angular momentum, and vacuums (in a suction cup). This was a successful event and although we may change things like bringing speakers so that the video clips are louder, the program will serve as one we can continue to use throughout the community and with the rest of our outreach events.

**Key Metrics and Reflection**

Who was the target audience of your project?	<b>Children in 8<sup>th</sup> grade and under</b>
How many attendees/participants were directly impacted by your project? Please describe them (for example "50 third grade students" or "25 families").	<b>Approximately 150 kids and their families</b>
How many students from your SPS chapter were involved in the activity, and in what capacity?	<b>10 students</b>
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?	<b>The amount received was enough.</b>
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	<b>Yes, this project is engaging for students and families, and will serve as another program for our repertoire.</b>
What new relationships did you build through this project?	<b>Relationships between other student organizations in Drexel University as well as the Philadelphia Science Festival coordinator, Holly Burnside, for our school.</b>
If you were to do your project again, what would you do differently?	<b>Get louder speakers or use pictures of hollywood movies instead of a laptop.</b>

## Expenditures

Our expenditures were spent on demonstration materials we needed to perform the experiments to disprove or prove the science in each movie. For example, the Plasma Ball was used to demonstrate the arcing or a tesla coil which was shown in the movie, The Prestige. Our chapter of SPS also provided a spinning platform in which we put a chair and used this to demonstrate conservation of angular momentum, like in the movie Ice Princess.

### Expenditure Table

Item	Cost
12 Pack Parachute Army Men	\$12.00
7" Plasma Ball	\$37.00
4" Industrial Suction Cup	\$20.00
3 Bags Marshmallows	\$9.00
1 Parachute Army Man	\$4.00
Sodium Acetate	\$12.00
<b>Total of Expenses</b>	<b>\$94.00</b>

## Activity Photos



Drexel SPS with Benjamin Franklin at the Philadelphia Science Festival



A Family learning about a Tesla Coil

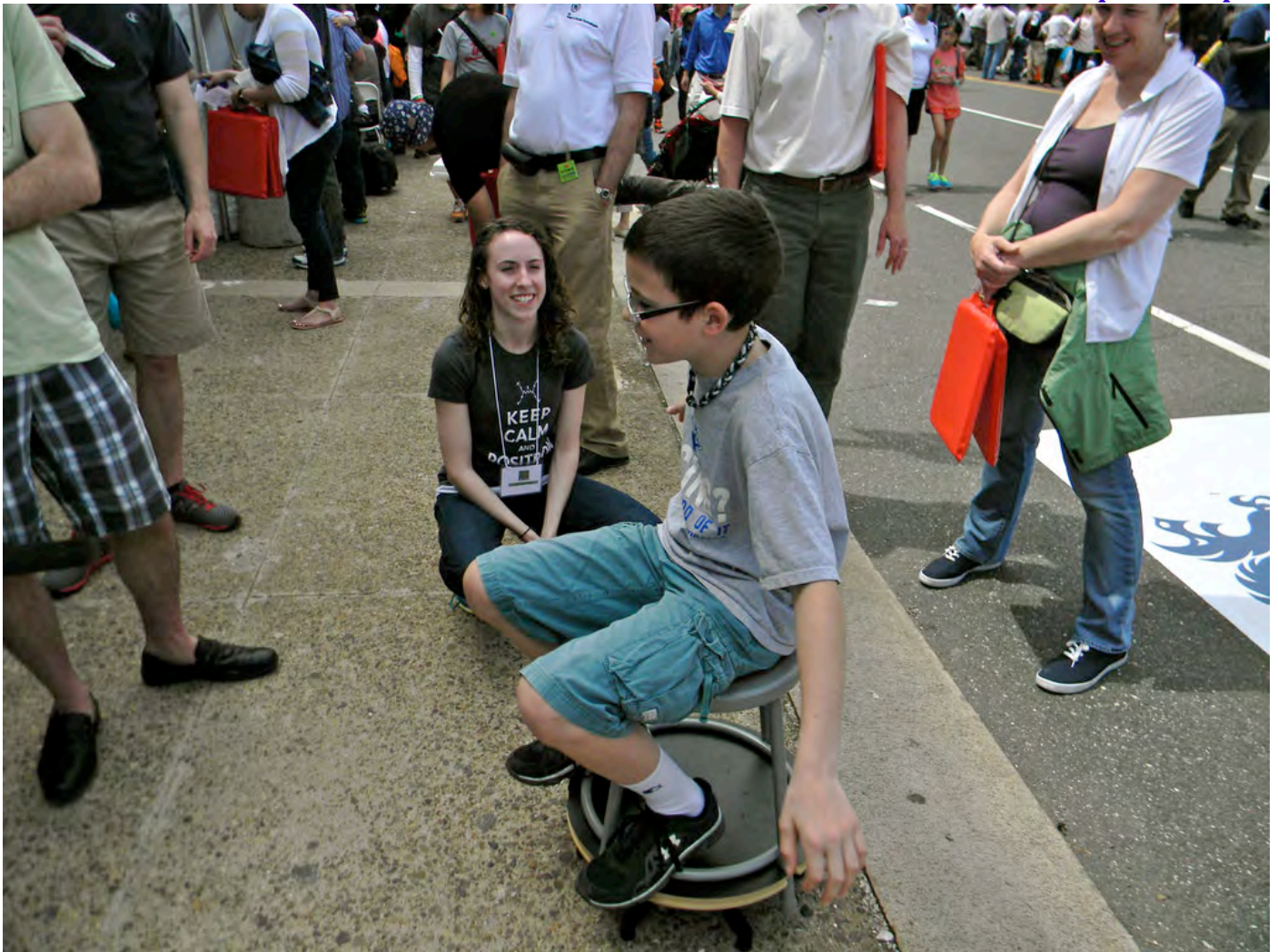


Children learning about suction cups

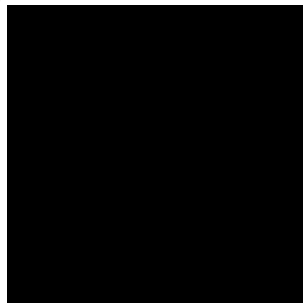




SPS Member Demonstrating the Angular Momentum Chair



Student performing the demonstration on angular momentum



If you have any questions, please contact the SPS National Office Staff  
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