



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh White Award Report Template

Project Proposal Title	Rhodes College Rites to Play
Name of School	Rhodes College
SPS Chapter Number	5940
Project Lead (name then email address)	Grace Nehring nehgi-25@rhodes.edu
Total Amount Received from SPS	\$456.00
Total Amount Expended from SPS	\$456.00

Summary of Award Activities

This year, Rhodes SPS participated in our college's Rites to Play event. Children from the Memphis community were invited to a space on Rhodes campus where various Rhodes organizations had set up tables to entertain them. For our table, we had a variety of demonstrations that we thought both kids and parents would enjoy. At one point we were able to get a small crowd watching as we imploded a barrel! Overall, we felt that the kids loved our table, and we hope that we can do something similar in the future!

Statement of Activity

Overview of Award Activity

The Rhodes chapter of SPS participated in our college's annual Rites to Play event, a large-scale event put on by the college's Kinney Program. At this event, various campus organizations are given the opportunity to provide fun and educational activities for families of the Memphis community. To accomplish this goal, Rhodes SPS partnered with the Aerospace Engineering club and provided a wide array of activities that were both entertaining to view and provided insight into physics concepts for both parents and kids.

The demos brought by Rhodes SPS included elephant toothpaste, penny melting, freezing candy in liquid nitrogen, and a barrel crush. The elephant toothpaste demo involved mixing various things together in a plastic bottle to create a foam that shot out of the bottle. We were able to let kids pick what colors they wanted to add to the concoction so that kids were directly involved with the demonstration and so each kid's toothpaste was more "personal". The penny melting demo involved using a blowtorch to melt pennies, which were then dropped into water. This resulted in the pennies being reshaped, and the kids were allowed to keep these pennies. Our liquid nitrogen demonstration consisted of putting candy in a bowl and then pouring liquid nitrogen on top of it. Once the liquid nitrogen had evaporated, kids were allowed to eat the now frozen candy. We had members in charge of each of these demonstrations ready to perform them for kids as they approached our table. Our final demonstration was the barrel crush. We were only able to do this once due to its preparation time and the limited number of barrels we had to crush.

Our target audience was the children attending the event. Because of this, we sought to provide demos that were entertaining and relatively easy to understand. There were approximately 200 kids who attended the event. Given the excitement from the kids about our demos, we felt that we did a good job reaching our intended audience. Due to our audience, we found that this event fit in nicely with the outreach aspect of our SPS chapter, as we frequently attend events that allow us to get kids involved in physics.

While there were many exciting moments at the event, a highlight was the barrel crush demo. The demonstration had to be done in an area slightly removed from the rest of the event, and as a result we had to rally the kids to come check out the barrel. This meant that we had a small crowd excited to watch a barrel implode. Our chapter has attempted this demo many times in the past, and we found that it doesn't always work due to the varying quality of the barrels we had. Given the crowd we had gathered, we were a little worried it would not implode, but after a dramatically long time, the barrel was crushed!

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

Our goal for Rites to Play was to get local kids and the general public excited about physics. In order to accomplish this, we utilized kid-friendly demonstrations to get students involved in conversation surrounding physics. We wanted children to watch our demonstrations, learn about the physics behind them, and get excited about the concepts.

We met these goals by having student volunteers show attendees demonstrations, but also explain the mechanics. Our volunteers were all SPS members who had knowledge of the demonstrations that they happily shared with the students.

Our assessment plan was to look at attendance, feedback from kids, and feedback from volunteers. A high level of attendance would confirm for us that this is a good activity to get the community excited about physics, as well as confirming that our community enjoys outreach projects from our SPS chapter. We had around 200 local children attend Rites to Play, which is approximately what we expected. This was a good turnout and a positive outcome for assessing the success of this project. When thinking about feedback we got from participants, it was overwhelmingly positive. This was a good sign that the event was well planned and engaging. We had multiple kids come back to our booth several times to see demos again and ask questions, and we had lots of engagement with the barrel crush demo. The main area for improvement was to have our booth running sooner, as some attendees arrived early, and we were unable to fully show them demos. In addition, we did not have nut free candy for the liquid nitrogen demonstration. Our volunteers had good and constructive suggestions for what to change for next year, which reflected the suggestions from the community. Their suggestions also included having training for volunteers and providing demonstrations information ahead of time to make the process run more smoothly.

A long-term metric of success for us will be repeated attendance and increasing attendance. We heard some participants already talking about wanting to come back next year, and talking about coming to our fall outreach event, pumpkin drop. This was a very good sign for our long-term metrics, and we are excited for them to have a continued interest in physics!

Key Metrics and Reflection

Who was the target audience of your project?	Local elementary age children
How many attendees/participants were directly impacted by your project? Please describe them (for example "50 third grade students" or "25 families").	About 200 local kids, accompanied by some sort of adult chaperone
How many students from your SPS chapter were involved in the activity, and in what capacity?	10 students from our SPS chapter volunteered at the event to set up, clean up, and show demonstrations to attendees
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?	Yes, the money received from SPS was sufficient and no further funding was necessary
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	Yes, all of our students and the participants from the community enjoyed the event, so we are planning to participate yearly if possible!
What new relationships did you build through this project?	Our chapter built new relationships with the Kinney Program at Rhodes College, which organizes volunteer opportunities for students and was the primary organizer of the event. Additionally, we built relationships with college alums and community members, so SPS is now more well known in the community for our outreach.
If you were to do your project again, what would you do differently?	In the future, we hope to provide more demo trainings for volunteers ahead of time to help the beginning of the event run smoother.

Press Coverage (if applicable)

N/A

Expenditures

All the expenses were made from the provided funds from SPS and followed those in the proposal. Dr Pepper bottles, hydrogen peroxide, dry yeast, dish soap, food coloring, and funnel set were all used for the elephant's toothpaste demonstration. The plastic cups were purchased to be filled with cold water and cool and hold the melted pennies. The liquid nitrogen, candy, and bamboo skewers were all used to freeze and for ease of consumption of candy for the participants. Lastly, safety goggles were purchased and provided for each attendee who visited the table.

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
Dr Pepper 6 pack	Bottles for elephants toothpaste	\$5
Hydrogen Peroxide	Ingredient in elephants toothpaste	\$20
Dry Yeast	Ingredient in elephants toothpaste	\$27
Dish Soap	Ingredient in elephants toothpaste	\$3
Food coloring	Ingredient in elephants toothpaste	\$6
Plastic cups	Used to hold melted pennies	\$6
Funnel Set	Used for elephants toothpaste	\$4
Safety goggles	For children in audience	\$15
Liquid Nitrogen	For freezing candy	\$318
Candy	For audience consumption	\$48
Bamboo Skewers	For candy consumption	\$4
Total of Expenses		\$456

Activity Photos



Rhodes College SPS students at Rites to Play event table showing demonstrations to attendees. Two members are melting a penny using a blowtorch for one local child.
Credit: Luzia Thomas



The aftermath of an elephant's toothpaste demonstration at Rhodes College Rites to Play event.
Credit: Brent Hoffmeister



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