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

Marsh White Award Report Template

Project Proposal Title	Summer Squash: Watermelon Smashing at Rhodes Rites to Play
Name of School	Rhodes College
SPS Chapter Number	5940
Project Lead (name then email address)	Jordan Meyer
Total Amount Received from SPS	$300
Total Amount Expended from SPS	$317

Summary of Award Activities

On April 16, 2016, the Rhodes College chapter of the Society of Physics students hosted a booth for the Rites to Play carinval event coordinated by Kinney, a service group on campus. Families from the greater memphis area visited campus to interact with the student groups to have a fun and enjoyable Saturday. We had 6 demonstrations prepared: fire tornado, oobleck pool, oobleck speaker, vacuum chamber, quantum levatator, and freezer pops. We also had a fruit smash with frozen fruit.

Commented [a1]: I might not remember all of them, and add one if you're going to consider the freezer as a demo

Statement of Activity

Overview of Award Activity

The Rhodes College chapter of SPS participates annually in Rites to Play, a children's carnival open to Memphis families. This event features a number of student organizations and typically draws crowds of close to 1000 people. This year, SPS members presented six demonstrations, including a vacuum chamber, a fire tornado, and Oobleck. While these were all taken from our already existing catalogue of demos, we used the Marsh W. White Award funds to purchase freezer pops, which we then froze with liquid nitrogen for the children. We also improved our freezer, given that we had issues last Pumpkin Drop, and used it to freeze fruit for a "Watermelon Smash". We smashed the (very) frozen fruit with hammers and threw it against the sidewalk, where it shattered spectacularly.
The frozen fruit served several purposes in the context of this event. It brought a new activity to Rites to Play, and encouraged kids to look at fruit differently. Being able to smash a banana or a giant watermelon on the sidewalk and have it frozen all the way through was novel and exciting, and since we had other demos using liquid nitrogen (freezer pops and quantum levitation), it fit into the general scheme of the event. We talked about liquid nitrogen—what it actually is, and what effects it can have on its surroundings.
We also used the opportunity to make some improvements on our freezer, which had run into some difficulties last Pumpkin Drop. After the renovations, we were able to perfect our freezing technique—the watermelons were frozen completely solid—so that next Pumpkin Drop will be better.

We were able to provide our audience with hands-on scientific demonstrations that most families would never have had the chance to experience.

We interacted with about 100 children ages preschool through middle school and their families. They were able to engage with the presenters and the demos individually and in small groups

Rites to Play is one of our two big on-campus annual events, the other being Pumpkin Drop. Each year, in addition to bringing out all of our most impressive demos, we try to add a new feature to keep things fresh. This year, we decided to smash frozen fruit as a fun summer activity.

One positive outcome of the event was that we were working with children from around Memphis, many of whom had already interacted with SPS through outreach. Some of them recognized our members or specific demos, and were really excited to show off what they knew—most of them could explain the physical concepts behind the demos they'd seen in some detail, showing that our outreach has been effective! Several were also very anxious to know when we would be visiting their schools again.

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

The primary goals of this project were to engage children with physics demonstrations in an informal, often one-on-one manner. We also wanted to encourage families to talk about science together. To this end we were very successful, as hundreds of kids enjoyed our demonstrations throughout the day but it never felt crowded or stressful, due to the number of activities available.
The parts of this event that were funded by the Marsh W. White Award—fixing the freezer and smashing frozen fruit—were supposed to prepare us for a successful Pumpkin Drop and to explain triboluminescence and liquid nitrogen freezing more effectively than at Pumpkin Drop. We redesigned the freezer, and it ended up working extremely well. While we did smash fruit, the turnout at this particular demonstration was less than expected; in retrospect we could have encouraged the families to participate more to this end.

Due to the informal nature of the event, we originally planned on using primarily verbal and observational assessments. We did get a lot of positive feedback, and a number of kids returned to demonstrations they had already seen because they enjoyed them so much. In particular, the fire tornado and quantum levitation were very popular for their "wow" factor—we got a lot of awed faces! The vacuum chamber worked well, and was easy for children to talk about and understand more intuitively compared to the other demos.

- Results from the project assessments

Key Metrics and Reflection

Who was the target audience of your project?	Families of preschool through middle school age children in the greater Memphis area
How many attendees/participants were directly impacted by your project? Please describe them (for example "50 third grade students" or "25 families").	Around 100 families
How many students from your SPS chapter were involved in the activity, and in what capacity?	15 members assisting with demonstrations
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?	We didn't run into any difficulties with the budget, and were able to stay with our proposed budget without any difficulty
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	Yes. This event is organized by an on campus organization for other organizations on campus to develop activites for children in the greater Memphis area.
What new relationships did you build through this project?	As in past years, we worked with the Kinney Program, a Rhodes student organization that is responsible for planning Rites to Play.
If you were to do your project again, what would you do differently?	We would work harder to highlight the frozen fruit part of the event, since it was the new feature this year.

Expenditures

We used our own funds to repair the freezer and get it in good working condition for Rites to Play. The Marsh White Award allowed us to purchase the supplies needed for this event; most went towards the liquid nitrogen that was used in freezing fruit ad freezer pops, as well as in our quantum levitation demonstration. The rest was spent on the actual fruit that we smashed.

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
Craft Stix (x2)	Used to help with testing the freezer	2.28
Watermelon (x3)	Used to test the freezer	20.97
Red Grapes	Used to test the freezer	9.99
Apples	Used to test the freezer	3.00
Freezer Pops	These were served to the kids	10
Bananas	Used to test the freezer	2.99
Liquid nitrogen	Used to test the freezer	270
	Total of Expenses	317.23

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.

Note that you will be encouraged to upload high resolution copies of your best photos directly to SPS via the FluidReview site when you submit your report.

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