



Future Faces of Physics Award Report

Project Proposal Title	Smashing Stereotypes: Egg Drop for Memphis Girls
Name of School	Rhodes College
SPS Chapter Number	5940
Project Lead (name and email address)	Eleanor Hook hooeb-18@rhodes.edu
Total Amount Received from SPS	\$480.50
Total Amount Expended from SPS	\$404.56

Summary of Award Activity

The Rhodes College chapter of SPS used funds from the Future Faces of Physics Award to host an egg drop for Memphis girls. Students ages 8 to 13 were invited on campus for the free event, where they used limited resources such as cardboard, tape, and rubber bands to construct a protective case for their eggs, which were then dropped five stories. Twenty families from the greater Memphis area participated, providing an exciting and fun opportunity for girls to improve their engineering skills and interact with their peers.

Statement of Activity

Overview of Award Activity

Rhodes SPS has always prioritized outreach, particularly in schools, but we have implemented very few on-campus events for the public. Through this project, we hoped to welcome Memphis girls to the campus and improve relations between the college and the Memphis community.

We invited girls ages 8 to 13 from the greater Memphis area to participate in Egg Drop, where they worked with SPS members to construct protective cases for eggs. Once everyone had finished their projects (about 90 minutes), SPS members dropped each egg from the sixth floor of the physics building. Each girl was invited to examine the results (about half survived), and ultimately the girls were scored based on egg intactness and case weight (with lighter cases scoring higher). The overall winner (who had her egg survive in the lightest carton) was awarded a Snap Circuits kit, while all of those whose eggs survived received custom t-shirts.

The goals of this event were manifold. First and foremost, we wanted to provide a relaxed and engaging setting for young girls interested in science to improve their engineering skills through their own creativity. There was a remarkable amount of interaction and debate between competitors, and many of the girls ended up rethinking their designs and improving them as a direct result of this communication. While SPS members were not permitted to compete, many elected to make cases of their own, reinforcing the message that physics can be fun and not just work. After all of the guests' eggs had been dropped, the girls had a wonderful time seeing the success (or not) of Rhodes physics students' and faculty's designs, which ranged from the scientifically sound to the ridiculous.

Additionally, we wanted to introduce these girls to the college and SPS as an organization. While some were daughters of Rhodes employees or students who had seen us before at outreach events, for many of the participants it was their first time on campus. SPS fielded a number of questions about studying physics in college and invited these families to future SPS events.

Impact Assement: How the Project/Activity/Event Promoted Physics across Cultures

Our primary means of assessing the project was direct communication with the participants; SPS members interacted with the girls throughout the event, asking questions about their case designs and how they would help cushion the fall. Many of the girls gave direct answers—the flaps will slow the fall, the rubber bands will provide flexibility and cushioning, the case itself will absorb the shock—though some ended up rethinking their design when they realized they were unable to respond. One ineffective strategy that we observed quite frequently was covering the egg with tape before placing it in the case. While many of the girls thought it would provide some structural support, they soon learned through experience that this was not the case!

The other ways we assessed the impact of this event were simple observation and a few metrics. By watching the way the girls interacted with each other and SPS members, it was clear that our goal of helping them develop

new relationships with others interested in STEM fields was highly successful. The participants were from all over Memphis and many would not have otherwise met or visited Rhodes, but they were thrilled to be able to spend time together and hear each other's ideas and experiences.

The more tangible results of the event also point to an overall success. A total of 21 girls participated, fewer than we had originally planned for, but this permitted a higher guest-to-host ratio so we were better able to monitor the event.

Of the 24 eggs dropped (a few participants had more than one entry), 13 survived. To us this was a good success rate—it clearly was not too easy to construct an effective case, but enough girls did so that we avoided complete discouragement.

We also met our goal of creating new connections with people and organizations we had previously not worked with. Nine of the participants were from schools we had earlier ties to, but the rest had had no prior experience with SPS. Additionally, Girls Inc., a local organization that we had not worked with before, brought 8 girls and expressed interest in having us do more outreach with their students. After the event, several parents reached out to us to tell us how much fun their daughters had.

Impact Assement: How the Project/Activity/Event Influenced your Chapter

The challenge of creating a completely new on-campus event helped to bring our chapter together. We had eleven SPS members and two faculty help out at Egg Drop, making it our largest volunteer event after Pumpkin Drop. The most challenging part of this project was logistics, coordinating between the volunteers working the scoreboard, the people dropping the eggs, and the announcer, and we did have to make some tweaks to the original plan on the day of the event. However, we ended up developing a relatively smooth routine that we can implement next time we host an egg drop!

We also had trouble estimating the number of participants before the event began, which presented difficulties when it came to purchasing supplies. In the future, we will try to limit this issue by asking participants to register beforehand. While the event did present several learning opportunities, it was overall very successful and reflected well on our chapter and SPS as an organization.

Key Metrics and Reflection

The Future Faces of Physics Award is designed to promote projects that cross cultures. What cultures did your project attempt to bring together? (Please be as specific as possible.)	Elementary and middle-school girls and the college physics community
How many attendees/participants were directly impacted by your project? Please describe them (for example “50 third grade students” or “10 high school volunteers”).	21 girls between the ages of 8 and 13, and 14 parents 11 volunteers and 2 faculty
How many students from your SPS chapter were involved	

in the activity, and in what capacity?	
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? How would the additional funding have augmented your activity?	Yes, the funding was the perfect amount for the event as we planned it.
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	Yes, we plan on holding another egg drop next year. Whether this will continue as a girls event or whether we expand it campus-wide is TBD.
What new relationships did you build through this project?	We interacted with several organizations, including Girls Inc., Memphis, that we had not previously worked with.
If you were to do your project again, what would you do differently?	We should have had a preliminary registration to get a better sense of how many girls to expect.

Press Coverage (if applicable)

The Rhodes College website posted an article about the event when we received the award:

<http://www.rhodes.edu/stories/rhodes-sps-chapter-receives-future-faces-physics-award-national-office>

Expenditures

Most of the funding for the event was used to cover the cost of the supplies used by the girls to create their egg cases. As outlined in our proposal, we also purchased t-shirts that we gave out to volunteers and participants whose eggs survived. Finally, we offered a Snap Circuit kit as the grand prize to encourage participation and creativity.

Some supplies, including cardboard boxes and eggs, were provided by SPS members.

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
Scissors	Used to construct cases	\$15.53
T-shirts	Given to volunteers and participants	\$317.50
Masking tape	Used to construct cases	\$18.95
Snap Circuits	Given away as grand prize	\$43.97
Rubber bands	Used to construct cases	\$1.62
Straws	Used to construct cases	\$6.99
Total of Expenses		404.56

Activity Photos



SPS members work with Memphis girls to construct egg cases.



Professor Brent Hoffmeister (SPS advisor) makes his own case.



Participants used colored tape and straws to personalize their projects.



In the foreground, members of Girls, Inc., put together their egg cases. In the background, Eleanor Hook and Professor Hoffmeister survey the scene, while Phoebe Sharp points out the tower from which the eggs will be dropped.



A participant from Girls, Inc., looks around.



Eleanor Hook admires one design.



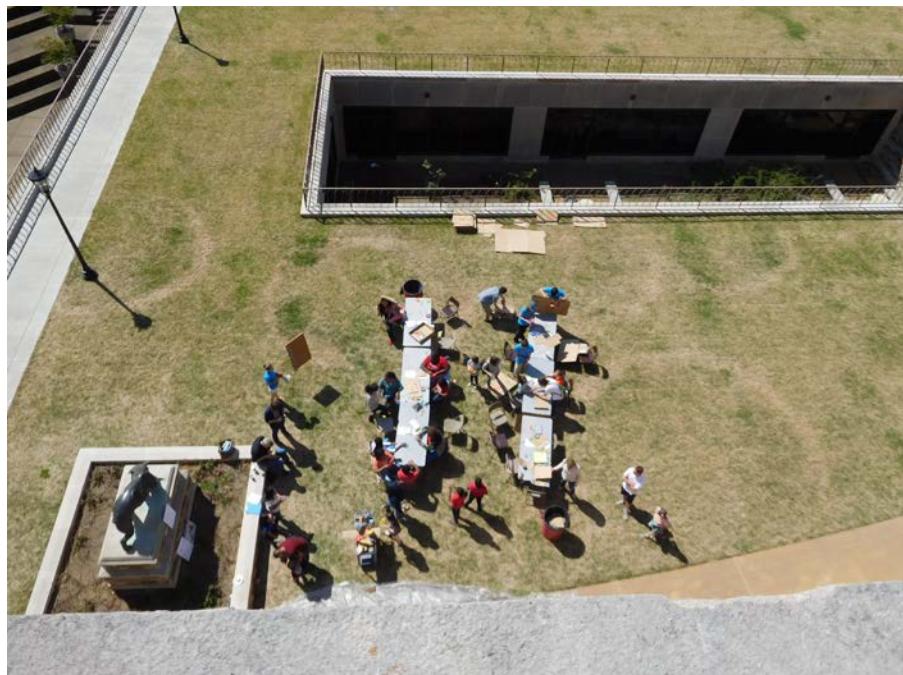
The grand prize is set on display.



Professor Ann Viano entertains girls with galaxy slime while they wait for other participants to finish their projects.



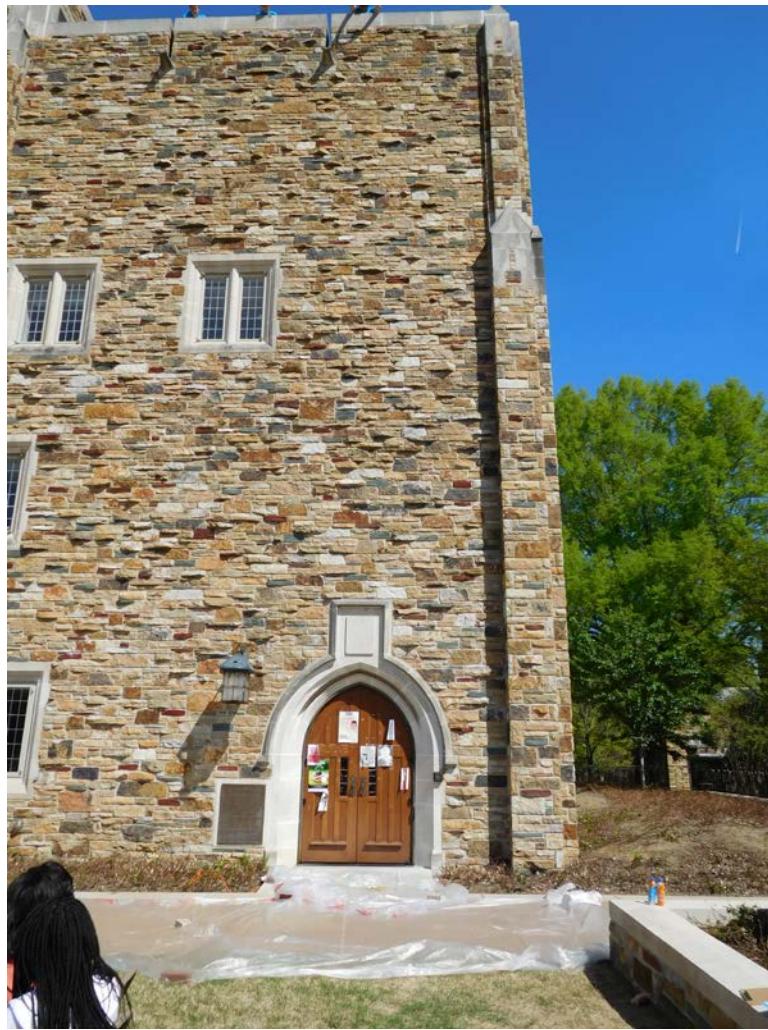
Christian Stankovic weighs and registers each egg case before it is dropped.



View from the tower!



Eleanor Hook shouts announcements, while Rodd Lofton and Abel Diaz prepare to drop the eggs.



It's a long way to fall!



Jordan Ankersen inspects for breakage.



The winner poses with her prize.



A couple of contestants proudly show off their scores.



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