



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Future Faces of Physics Award Proposal

Project Proposal Title	Rhodes College Egg Drop
Name of School	Rhodes College
SPS Chapter Number	5940
Total Amount Requested	\$550.00

Abstract

Egg Drop is an event where local children use basic supplies to construct a contraption that protects an egg from a 40-foot drop. Rhodes College SPS hopes to inspire curiosity and excitement about physics within our participants in a fun and accessible way within our diverse community.

Proposal Statement

Overview of Proposed Project/Activity/Event

Egg Drop is an annual event that Rhodes SPS hosts to engage children with the topics of physics and engineering. Local kids from the Memphis community are invited to come take part in this event by building a contraption to hold an egg with materials provided by SPS. After each child has created and decorated their holder, each contraption (containing a raw egg) is dropped 40 feet from the roof of our physics building to see which can keep the egg from breaking. We aim to encourage kids to think outside of the box and be creative when designing their egg holders to make it as light as possible, yet still survive the fall. To determine winners, Rhodes SPS members weigh each contraption and keep track of which eggs break. The lightest egg holder in each age group to survive the fall is given an award, in addition to an overall award for the best decorated egg holder. Each award winner is given a trophy that was 3D printed by Rhodes SPS.

Additionally, Rhodes SPS plans to add a popsicle stick bridge building contest as an extra challenge for middle school and high school kids. Popsicle sticks and other materials will be provided, and the kids will be given time to design their contraptions. Popsicle bridge winners will be determined by testing the bridges with hanging weights. The bridges that hold the most weight before breaking will be proclaimed winners and receive a trophy.

The target audience for the event is kids in the local community, with an emphasis placed on kids that are members of traditionally underrepresented groups in physics. In order to accomplish this, Rhodes SPS will partner with the Refugee Empowerment Program (REP) in Memphis. REP provides a place for refugee children to receive after-school care, tutoring, and opportunities to attend events. Rhodes SPS members currently provide tutoring for kids in REP, and they attended last year's Egg Drop. Rhodes SPS plans to place an emphasis on inviting members of REP to this year's Egg Drop, as well as students who attend the KROC Center. The KROC Center is a part of the Salvation Army and aims to provide community for people of all ages, races, educational backgrounds and economic means. We have recently begun working with the KROC Center and are excited to include them in this event for the first time. In addition, we plan to advertise this event to local girl scout troops and local elementary and middle schools! The Rhodes SPS members have greatly enjoyed this event in the past and are looking forward to welcoming the larger Memphis community to our campus to enjoy physics!

How Proposed Activity Promotes Physics Across Cultures

The proposed activity of the "Egg Drop" will inspire creative thinking and collaboration of ideas from the children participating, who will apply their knowledge of fundamental physics to design and engineer a safe egg holder.

This will be a memorable experience in a physics setting for the children and will hopefully attach good memories to physics. By working in a hands-on setting, and not focusing on complex equations, we hope to make physics more fun and accessible. Thus, to compete in the activity, the children must possess a basic conceptual understanding of the physical forces at play and think creatively. Additionally, this activity will serve to boost the confidence of kids in underrepresented groups and make physics more accessible. Overall, the children will leave Rhodes with a new understanding of physics as well as experience designing and engineering a device of their own.

Plan for Carrying Out Proposed Project/Activity/Event

Personnel:

- Kate Hazelwood, SPS Outreach Officer and Sophomore Physics major, will be front running the event's involvement with local schools and families of Memphis. She was a contributor to this proposal.

- Grace Nehring, SPS President and Junior Physics major, will be overseeing the planning of this event. She was a contributor to this proposal.
- Evan Duet, On-Campus Programmer and Junior Physics major, will be a primary figure in the planning and marketing of this even. She was a contributor to this proposal.
- Sam Lippe, SPS Demos Officer and Junior Math major, will be involved in the planning and marketing of this event, particularly in matters of demonstrations and experiments performed at the event.
- Keith Hoffmeister, SPS secretary and Junior Physics Major, will be involved in the planning and marketing of this event.
- Jana El Abiad, SPS Treasurer and Sophomore Physics major, will be managing the budget as well as contributing to the planning and marketing of this event. She was a contributor to this proposal.
- Luzia Thomas, SPS Social Media Chair and Sophomore Computer Sciences major, will be involved in the planning and marketing of this event, specifically in managing the social media presence.
- Other important personnel include Lauren Boughter (SPS Vice President, Junior Physics major) and Lily Whitesell (SPS Public Relations Chair, Senior Physics Major).

Marketing:

- This project will be marketed toward local schools in the community with which the Rhodes College SPS chapter has frequently worked in past years. Rhodes College SPS also regularly involves Girl Scout troops in the area, as well as the Refugee Empowerment Program.
- The event will be marketed via various official Rhodes College SPS social media accounts.

SPS member participation:

- Volunteers will mainly consist of SPS members with an expected minimum of 25 volunteers not involved in the event’s planning.
- Additional volunteers can be acquired through the schools physics classes, allowing non-SPS members to participate, as well.

Expertise:

- Several of the personnel involved in the planning process were contributors to this event last year and can provide useful guidance. These members include Grace Nehring, Sam Lippe, Lily Whitesell, and Keith Hoffmeister.
- Our faculty advisor, Dr. Brent Hoffmeister was also involved in the event in past years and can offer helpful guidance and insight.

Project/Activity/Event Timeline

By end of January	Reach out to community partners and set a date for the event to ensure their attendance.
By end of February	Collect or order all necessary materials and organize volunteers.
Mid-March	Allow time for ordered parts to arrive, and begin advertising to professors and Memphis community.
By March 20	Receive all ordered parts and materials.
By April 1	Map out location of demos and tables at event, finalize volunteers.
Week of Event	Organize all necessary items for event and ensure all volunteers are well-informed.
Early April	Egg Drop
Mid-April - Early May	Construct Final Report

Activity Evaluation Plan

In order to evaluate the success of Egg Drop, the SPS leadership team will consider attendance, comprehension, and participant feedback. We will track overall attendance and participation throughout the event. We especially want to focus on tracking attendance of the kids who came as part of REP, the KROC Center, local schools, and girl scouts in order to determine the audience we reached. At the beginning, we will assess students' understanding of the relevant physics principles; we will also ask them about their general attitude toward physics. At the end of the event, we will repeat the same questions to measure improvement in understanding and attitude. Additionally, we will survey the students to gauge their engagement and the level of support they received, as the goal of our event is to encourage underprivileged students in physics. We will also seek feedback from teachers, volunteers, and parents after the event. All these measures of success will be discussed in detail at the following SPS officer meeting. Additionally, we will review past records of this event and compare the overall success. We will also brainstorm ways to enhance the event in the future, based on our results

Budget Justification

The supplies that Rhodes SPS is asking for will be used by the participants of the Egg Drop competition. Supplies like cotton balls, straws, tape, balloons, twine, popsicle sticks, cardboard, craft kits, glitter, glue, and scissors will be required by participants to build their egg protector. We ask for tarps to protect the zone where eggs will hit from mess and damage due to the impact of the eggs and their protectors. We want to buy eggs for participants to drop. Lastly, we want drinking water and snacks to be available at the event for the attendees to stay hydrated.