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

Marsh White Award Report

Project Proposal Title	Science Olympics
Name of School	Henderson State University
SPS Chapter Number	2798
Project Lead (name then email address)	Jackson Baber
Total Amount Received from SPS	$250.00
Total Amount Expended from SPS	$463.40

Summary of Award Activities

The Henderson State University Science Olympics consisted of six events, two each in biology, robotics, and physics. Our SPS chapter collaborated with the Biology Club and Reddie Robotics Club. We had 42 high school students participate on seven teams. With our funding, we were able to purchase supplies and awards for the 7 regional high school teams who participated.

Statement of Activity

Overview of Award Activity

The Science Olympics consisted of 6 events, 2 each in biology, robotics, and physics. The events were a trebuchet build (teams launched red new potatoes and submitted design drawings to earn points), an on-the-spot bridge build using 75 toothpicks and 40 ½" cubes of new potatoes (teams had to support mass and span a 6" gap with their bridge; the winning team held 1.9 kg), a replicating DNA model, an on-the-spot research and presentation event, a programming event using mbots to navigate their way through a maze autonomously, and an on-the-spot programming event using mbots to run a race. With our funding, we were able to purchase supplies and awards for the 7 regional high school teams who participated. We also received funding from our university Student Leadership Center to cover the cost of lunch and funding from the Ross Foundation to purchase mbots for each team who participated. The mbots were then given to the schools of each team that participated.

The project accomplished a number of goals:

1. We were able to provide resources, projects, and motivation to schools in our region, supporting teachers as they prepared their teams and giving students an opportunity to apply some of the concepts they learn in class.
2. We were able to include a large number of college students (SPS members and others) with over 25 volunteers throughout the day. The college students were able to see the benefits of outreach in our local community.
3. We developed a stronger sense of collaboration with other student organizations within our university.
4. We were able to present a well-organized, physics-related event in which everyone had fun and we made our department and university administration proud.

Our target audience was high school students. Ultimately, we involved 42 high school students from local and regional schools. Our chapter is involved in a fair amount of community outreach, so this provided a great opportunity. In addition, members of our chapter also had fun designing toothpick bridges and our trebuchet, as we developed the rules for the high school students who participated. Some of us also had a good time working with the mbots, helping to design the events in robotics.

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

The original goal was simply to provide a hands-on opportunity to be involved in physics to local high school students. We wanted to create something to get students excited about learning. Ultimately, we accomplished far more than that. We made connections with local teachers. We provided resources to those teachers. We created greater camaraderie within our chapter as we developed projects and rules. We shared the joy of outreach with other student organizations on campus. Everyone had a great time and we are all proud of what we accomplished.

We assessed our impact by speaking with team coaches following the event to determine their perceptions of the events success, areas they would like to see improvement, and suggestions for future events. The comments from coaches were overwhelmingly positive. All coaches said they would bring teams again in the future. One coach even told us that the events really inspired her students to consider college degrees in science fields when they previously hadn't considered science as an option.

In addition to discussing with coaches, we also discussed the events with the event judges to determine how the events went. Judges gave great suggestions for improvement to make events run more smoothly and to work out small details for next year. Overall, judges were very positive about the way the events ran and the perceived impact on the students who participated.

As we look at the possibility of holding this event again, we will consider the amount of money spent, the number of community members served, and the quality of the impact in our future planning.

Key Metrics and Reflection

Who was the target audience of your project?	**High school students (9-12th Grade)**
How many attendees/participants were directly impacted by your project? Please describe them (for example "50 third grade students" or "25 families").	**42 9th-12th graders and their team coaches**
How many students from your SPS chapter were involved in the activity, and in what capacity?	**5 were primarily involved in planning events, 12 were involved as volunteers on the day of the event**
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?	**Our initial proposal was for $463.40. We used every bit of that and more. We also had $720 from our Student Leadership Center to pay for lunch and $820 from the Ross Foundation to provide mbots to the teams.**
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 hope to repeat this event with different competitions next year (and maybe also involve the chemistry club in addition to biology and robotics).**
What new relationships did you build through this project?	**We strengthened the relationships of chapter members. We also built relationships with the Biology Club at HSU and with the teachers who coached the participating teams.**
If you were to do your project again, what would you do differently?	**Our competition schedule went very well, but it would be difficult to schedule the way we did with more teams. We need to find a way to schedule more efficiently.**

Expenditures

Expenditure Table

Item	Please explain how this expense relates to your project as outlined in your proposal.	Cost
3 Plaques for winning teams – Overall winners in each area	This is an award provided to the event winners to motivate competition.	$85
108 Award Ribbons for each team member for teams who won first, second, and third in each individual event	This is an award provided to the event winners to motivate competition.	$230
Trebuchet building materials	As we designed the rules for the trebuchet competition, we built our own to ensure that our rules were complete and doable.	$50
Supplies for the competitions (Toothpicks, potatoes, poster boards, measuring devices, wooden boards, paint, etc)	These were the supplies necessary to carry out the competition.	$115
Lunch provided for 42 competitors, 10 coaches and chaperones, 8 judges, and 25 volunteers	We provided lunch for everyone involved. All competitors, judges, coaches, and volunteers had a lunch break together to allow everyone to talk and get to know each other. (Our food service provider on campus has an exclusive contract for events on campus. Last year, we had a different provider and we were able to get food donated locally. Unfortunately, this year we weren't allowed to do this so the expense was much higher)	$720 (provided by Student Leadership Center at HSU)
Mbots and sensor kits	This was for the robotics competition. Each high school got to keep their bots.	$820 (Provided by the Ross Foundation)

	Total of Expenses	$480 (paid by our SPS chapter) $2020 (total for the whole event)

Activity Photos

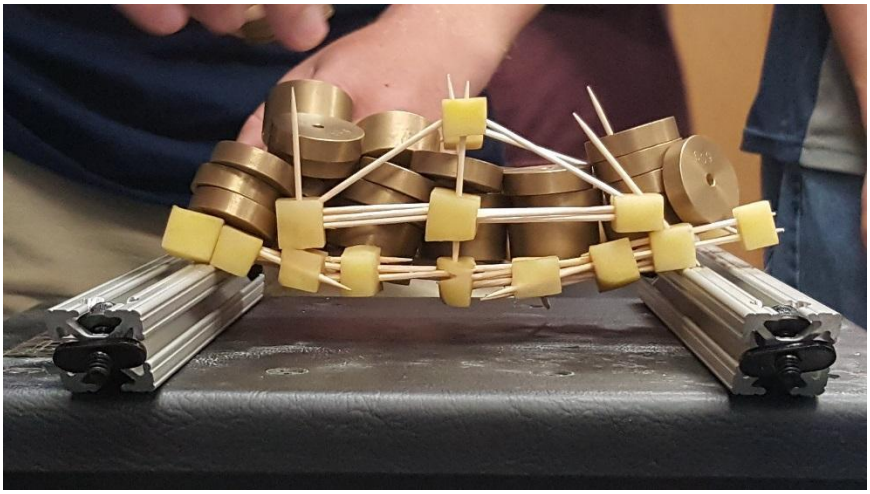
HSU volunteer Rachel King helps as students prepare for the biology research event.

Awards are laid out for the awards ceremony at the end of competition

Toothpick and potato bridge in progress before testing begins.

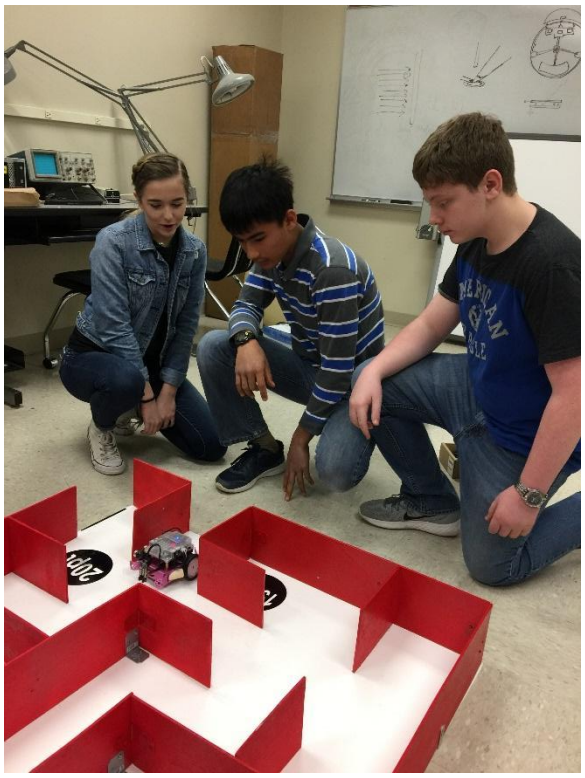
Watching the mbot navigate the robot race.

Teams prepare their trebuchets for launch on the quad.



The strongest Toothpick bridge held 1900g before breaking.

An Arkadelphia High School Team watches their mbot navigate the robot maze.



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