



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Marsh W. White Award Proposal

Project Proposal Title	The Annual IUP Physics Olympics
Name of School	Indiana University of Pennsylvania
SPS Chapter Number	3138
Total Amount Requested	\$500.00

Abstract

The Annual IUP Physics Olympics brings together curious minds and hard-working high school students enrolled in a physics course who look to expand their knowledge and curiosity of the discipline through team-building exercises in a fun yet stimulating environment while our university student participants eagerly guide them through the process.

Proposal Statement

Overview of Proposed Project/Activity/Event

The Physics Olympics has been a long-standing tradition at IUP. Since it was first reported in The Physics Teachers in 1976 [“Competitions for Secondary Physics Students”, *Phys. Teach.* 14,471,1976], it has created a positive impact on thousands of high school students who participated in the event. Every Spring semester, IUP brings together various high schools in the region to participate in our university’s Physics Olympics organized by the physics students. These high school students who are led by their physics teachers have the opportunity to expand their knowledge in a fun environment while competing against different teams from different schools. There are typically 80 to 120 students who participate in the event and are given the opportunity to show off their skills in physics through different activities we have planned for them in a half-day trip. Our mission is to bring together students who have an interest in the field and allow them to expand their curiosity through team-building exercises in activities such as constructing miniature towers using spaghetti noodles, utilizing kinematics to solve a projectile motion problem, a physics Jeopardy trivia game, building aluminum boats, a proctored physics problem that is to be solved on pen and paper, and an award ceremony for the winning team and individuals.

How Proposed Activity Promotes Interest in Physics

The event will bring together a lot of local high school students who are beginning their exposure to physics. Having hands-on experience to different ideas in the field allows students to use critical thinking, and team-building attributes to succeed together in the planned activities. This event will also help us to develop leadership qualities in planning and implementing the event. The Marsh W. White award will tremendously help this event continue for the coming years, and will inspire and motivate the next generation of physics students to be their best selves they are meant to be. The award will also provide the event with more opportunities to open up new activities for the physics students to participate in.

Plan for Carrying Out Proposed Project/Activity/Event

- Personnel – The Physics Club Officers (President David Lane, Vice President Ethan Addicott, Secretary Maxine Brandit, and Treasurer Austin Confer) will be overseeing the planning for the Physics Olympics with the assistance from our advisors Dr. Stanley Sobolewski, and Dr. Andrew Zhou.
- Marketing – The Physics Club and our advisors will reach out to various high school physics teachers regarding the date and time for the event, and necessary steps to sign their classes up for participation.
- SPS member participation – We are likely to have around 25 student volunteers for the Physics Olympics. Our volunteers consist of SPS members, as well as any student who have taken physics related courses already.
- Expertise – There are various SPS members who will ensure the event's success. Typically, the senior physics students will have greater responsibility regarding the activities since they have the most exposure to them. They will also pass their expertise to the junior students to ensure the continuity and smooth operation of the event after their graduation.

Project/Activity/Event Timeline

January 2023: The Physics Club will begin our weekly meetings every Friday to set the foundations for this year's event, and go over the logistics for each activity to ensure everything runs smoothly, and discuss any new activities that should be introduced as well as the questions for the Jeopardy trivia game.

February 2023: Begin reaching out to various university students and start advertising the event to receive a headcount for student volunteers. Also, order any necessary equipment such as items for creating aluminum boats, or miniature towers depending on how many school students are projected to participate in the event; we will reach out to high school teachers to get an overall estimate of attendees.

March 2023: Make sure everything is in order in terms of the scheduled activities, assign student volunteers their positions in the event, register out classrooms ahead of time to ensure we will have enough space, and generate the event schedule so every school physics teacher knows where and when his or her students will go to attend which activities.

April 2023: Run the half-day event. The registration starts at 8:00 am, followed by different activities occurring in different classrooms. Finally, the event ends around 1:00 pm after all of the results have been keyed in our computer system and the winning teams and individuals are awarded.

Activity Evaluation Plan

To ensure success for the Physics Olympics, the following will be enacted:

- A sign-in sheet for both students and their teachers, we expect a range of 80 to 120 students to participate.
- Photos of the Physics Olympics will be taken for chapter documentation and proof of the scheduled event.
- A student/teacher survey about their experience and feedback in which we will take into consideration for future Physics Olympics events.

Budget Justification

The Marsh W. White award will provide us with the funds to put on an amazing and inspiring event for high school physics students who take great interest in the field, as well as those who want a different perspective on the ideas of physics outside of the classroom through a hands-on experience. The budget will be allocated towards making Physics Olympics T-shirts for each student as a souvenir for their participation, a lunch that will be provided for each student during their time spent at the event, supplies to order for constructing the setups needed, and certificates for winning teams in certain and all activities. IUP has existing equipment we will use regarding our projectile motion activity.