



# SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

## Marsh W. White Award Proposal

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<b>Project Proposal Title</b>	OWU Elementary Outreach
<b>Name of School</b>	Ohio Wesleyan University
<b>SPS Chapter Number</b>	5209
<b>Total Amount Requested</b>	\$467.11

### Abstract

The Ohio Wesleyan University SPS chapter will be conducting an outreach program at several elementary schools to encourage interest in physics. We will be doing several demonstrations that show interesting physics concepts. This project aims to inspire interest in physics at a young age.

# Proposal Statement

## **Overview of Proposed Project/Activity/Event**

We will be doing an outreach project at Taft Elementary School, a local Title 1 school which we have previously done an outreach project. We will bring demonstrations with us to show interesting physics concepts, such as how sunscreen blocks UV light, and we will explain the physics behind at an age-appropriate level. This project aims to show interesting physics ideas to elementary students to hopefully start an interest in physics from a young age. Our initial outreach effort at Taft Elementary School was a success and we have been invited back again this year. Additionally, we have had other schools reach out to us with an interest in having us visit their classrooms. With the funding from this grant, we could not only pay for the transportation costs to visit these schools, but also purchase new equipment for use in demonstrations during our outreach projects.

## **How Proposed Activity Promotes Interest in Physics**

We plan to do outreach at elementary and middle schools to spark an interest in physics in earlier stages of education and provide a positive first experience with physics so that by the time students can begin taking physics classes, they are interested. The demonstrations and our explanations of the physics behind them will relate to everyday scenarios the students may experience or things they are learning in school.

## **Plan for Carrying Out Proposed Project/Activity/Event**

Personnel: Our personnel will be mostly SPS member volunteers, and we will be accompanied by OWU Physics department faculty.

We have already had two schools who have asked us to visit their classrooms in spring 2024, with details to be finalized after the winter holiday season. We hope to be able to visit at least one additional school during the spring semester.

We had 8 SPS member volunteers during the last outreach event we did at Taft Elementary School, but we expect more next time. The week of an outreach event, we will be having a meeting of the people interested in volunteering for the event to outline the event and practice the demos, including how to give age-appropriate explanations of them.

We will be getting vans from OWU for transportation of the event personnel and equipment.

We will be accompanied by faculty members of the OWU Physics department to help where needed.

A partial list of the planned demonstrations include: blacklight & sunscreen (showing transparency to different types of light), diffraction gratings (diffraction of monochromatic light), a sodium lamp & running electric current through a pickle (showing basic spectroscopy using the monochromatic light produced by an element), a fish tank with milk (showing interstellar reddening of light),

brachistochrone (gravitational force and kinetic energy), throwing eggs at sheet (impulse and momentum), astro-blaster (conservation of momentum), rotating platform demos (showing conservation of angular momentum), and an alarm in a vacuum chamber (showing that sound requires a medium).

### **Project/Activity/Event Timeline**

The outreach event at Taft Elementary School is tentatively planned for the end of February or the beginning of March in 2024. Exact dates for our outreach sessions will be decided after the winter holiday season. Moving toward those dates, we will have volunteer meetings one week beforehand to go over the program and prepare.

### **Activity Evaluation Plan**

We will be getting feedback from the OWU faculty member who accompanies us to the event to evaluate how well we communicated the concepts behind the demonstrations. SPS volunteers will be meeting afterwards to give feedback on the event to give ideas on how we could improve the program. We will also be asking the schoolteachers at the outreach locations for feedback on what we did well and what could be improved. We will be incorporating this feedback into future outreach events to make them more effective.

### **Budget Justification**

The money from this grant will be used to pay for the equipment for two new demonstrations and for 2 days of passenger van rental for transporting volunteers and equipment. The polycarbonate tube, rubber stoppers, and barbed ball valve are for a vacuum tube demonstration to showcase how all objects fall at the same rate in a vacuum. The remaining equipment is for a smoke ring apparatus to demonstrate vortices. The trash can is for producing large smoke rings and the airzooka is for producing small smoke rings. This equipment will fit in nicely with the other previously mentioned demos that we already have in the physics department.