



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Future Faces of Physics Award Proposal

Project Proposal Title	Be a Scientist Day
Name of School	Metropolitan State University of Denver
SPS Chapter Number	4225
Total Amount Requested	\$500.00

Abstract

The Metropolitan State University of Denver and University of Colorado Denver SPS Chapters are hosting high school members of the Boys and Girls Club to Be a Scientist. They will work in advanced labs with modern instrumentation, gain real world scientific experiences, and hopefully leave thinking like scientists.

Proposal Statement

The entire Proposal Statement should be no more than 2 pages, and organized as follows.

Overview of Proposed Project/Activity/Event

This event will bring under represented Boys and Girls Club kids to our campus so they can experience a day in the life of a scientist. They will experience advanced labs and research, build their own slater exciter circuit, learn to solder and 3D print, experience cryogenics, telescopes, and even isolate their own DNA. Most importantly, they will be able to take home their circuit, solar viewing sunglasses, and their DNA in a little vial necklace, all so they can share their experience and excitement for science with their friends and family.

Our hope is that whatever kids from the Boys and Girls Club of Metro Denver show up, that they end as a group filled with curiosity, inspiration, and direction for applying a scientific mindset. We will succeed in our goal for this event if just one of the kids decides that they might want a future in science.

The Boys and Girls Club is a nationally recognized organization helping kids who need it most. Our SPS Chapters team up with them often to bring another of our STEM outreach events to local clubs, but this will be the first time that they come to us. Also a first, this time they will all be high school aged. This will allow for a deeper exploration of fundamentals, as well as addressing career options to kids who might not realize they have some big decisions quickly approaching. We want them all to know that no matter where they might be currently in life, that a future in science a real possibility. Hopefully the 30 or so kids will have enough inspiration that they take it home with them and inspire others.

Since we have had an existing outreach event where we visit Boys and Girls Clubs around the city, it eventually was proposed to take make a deeper connection with the older club members. These are the kids who are about to become too old to be in the Boys and Girls Club, and might need a stronger connection. With our large base of outreach-veteran physics students, it was only natural to 'up the ante' from classic demos to showcasing some real, thought provoking, hands on science.

How Proposed Activity Promotes Physics Across Cultures

Every community is built from the bottom up, and so is every scientist. Becoming a scientist is not innate, it is a learned skill set that takes time and experience. Most importantly, it takes a community of like-minded peers where those skills can grow. Unfortunately, not everyone gets the opportunity to experience such communities. Our hope is to bring kids from all walks of life into our community, and experience the things they might not be able to elsewhere, so they can catch that curiosity bug that all physicist and scientists have.

Plan for Carrying Out Proposed Project/Activity/Event

The event is all planned, and ready to implement. We have both physics lab coordinators for MSU Denver and CU Denver participating, as well as professors from the Biology and Chemistry departments for help with the DNA extraction and isolation experiment. There will be roughly a dozen SPS members present, and members of the Society of Women in Engineering, Society of Women in Mathematics, and Society of Students for the Exploration of Space will be participating, as well as a number of other physics, chemistry, and biology students. We reached out across a number of disciplines to give the kids not only an experience in being a physicist, but truly what it is being a scientist.

There have been countless manhours spend so far preparing for the event. For example, each circuit will have a small transformer, and each of the inductors needed to be hand spun. Teams of dedicated students and faculty have been hard at work, bi-weekly meetings have marked and updated our progress, and dedicated communication platforms have been utilized to ensure fluidity in the process.

There was no marketing, but instead our contacts within the Boys and Girls Club organization have been working hard to find the right kids to participate. They have their own transportation finalized, and it looks like we are all ready for an amazing day!

Project/Activity/Event Timeline

This event has been under planning for a couple of months now. It is actually happening on Saturday, December 3rd! We were informed just today of this award, and since all of the funding has come from ourselves, faculty, fundraising, and our physics departments, it seemed a great way to both recoup costs and ensure funding for another future outreach event. With or without this award, we have been working very hard on making this a reality, and we are all set and ready to go this Saturday. With the Future Faces of Physics Award, we would be able to repeat this event next semester for another group of Boys and Girls Club kids!

Activity Evaluation Plan

Being our inaugural Be a Scientist Day event, we are very interested in how the event will play out. There will be a post-event debriefing to discuss how it went, and to collect feedback. We will also follow up with the Boys and Girls Club leadership afterwards, to see how they saw it unfold from their perspective.

A brief survey at the end of the day will be given to the participants, asking what parts of the day they liked best, what stood out most to them, and what they want to see more of. They kids will also be given contact information for us, our schools, and our departments, with the message that they can and should contact us whenever they have questions on anything, or just would like more experiences. A great metric would be if any of them truly take us up on the offer.

Budget Justification

All of our funding is going towards materials that the kids will directly be using, and actually take home with them. Listed in the budget are all of the components of the circuit that we are gifting them, as well as solar glasses they can use for the upcoming solar eclipse next year, an instant icecream demo using cryogenics, and the DNA extraction kits. In total, the event costs well over \$500, and the Future Faces of Physics Award will greatly help in making this event not just a one time thing, but a reoccurring event that can have a true impact on our local communities.

We will be using our department's soldering equipment, 3D printers, many more instruments, lab space, and they have been kind enough to supply a number of components and equipment. We have raised a good amount of the finances through internal fundraising, the Biology and Chemistry faculty that are running the DNA testing have donated an amazing amount of resources, and our department faculty have put forward an amazing amount of donations and financial support. We truly are blessed with the best physics department staff and faculty.