

Physics of Atomic Nuclei (PAN) High School Students 2013

The goals of PAN are different from the usual goal of most K-12 outreach programs, which is to increase interest in physics. Instead, a high interest in physics is a pre-requisite for participation in PAN, and the primary goal is to mentor and train youth who are considering a research career. They are treated as young scientists in training during the week, and also experience college life by living in residential halls, many for the first time. Some of the most beneficial interactions occur during lunch or in the evenings when the students have time to talk informally with graduate students and faculty about their work and life in academia.

PAN hosted 44 high school students from 18 different states at 2 locations during the summer of 2013. The program at the University of Notre Dame was residential for the first time this year, which allowed JINA to have a common application and allow students to apply to both programs (MSU & ND) simultaneously. We had a record number of 220 applications from which to select participants for both locations.

In many ways, the programs at the two institutions are very similar. During the respective weeks, students were presented with lectures by physics faculty, performed experiments using nuclear detection techniques, and presented their findings in poster presentations to parents and physicists. The primary difference is that students at MSU use MoNA, a neutron detector array, at NSCL and students at ND use equipment in the advanced modern lab in Jordan Hall of Science. Since the students were chosen from the same applicant pool, we expected their pre-surveys to be the same statistically, and they were. We also found that there were no significant differences in their post surveys between the two locations. Thus, the following results include all students.

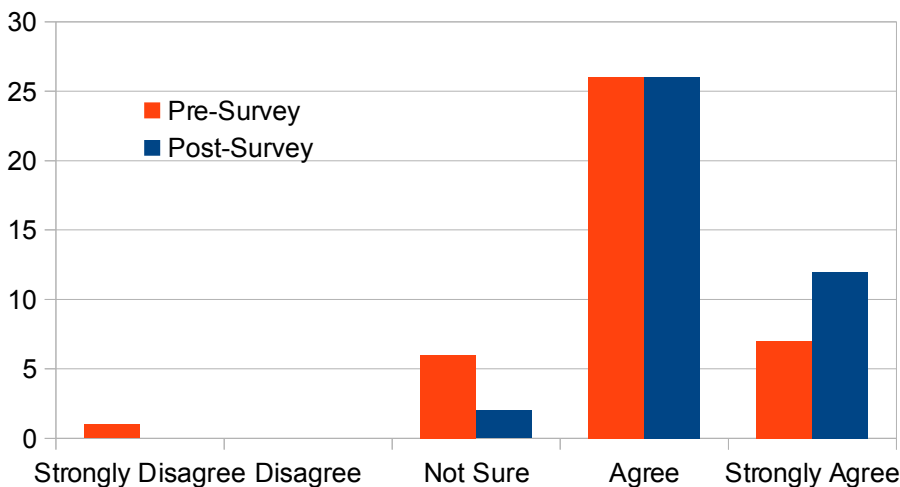


Above: Students learn how to use oscilloscopes to determine the position of neutrons detected by MoNA at NSCL.

Below: Students determine the elemental compositions of items using X-Ray Fluorescence in Jordan Hall.



I Understand What Work a Science Career Involves



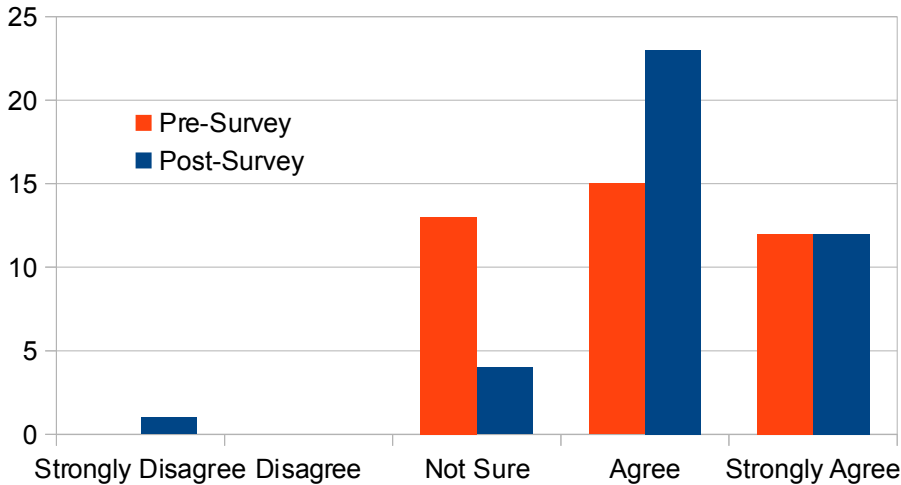
How has PAN changed your understanding of what scientists do?

It has given me first-hand insight into what it feels like to work in a lab all day and the kinds of equipment/environment/problem-solving you would be exposed to as a researcher.

I now understand that scientists do a lot more than just science.

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I am Interested in Physics as a Career Path



The chart to the left demonstrates that PAN is succeeding in its mission to help students decide whether or not a career in physics is a good fit for them. Students were asked about a variety of related majors and career paths and in all cases the number of “Not Sure” responses decreased after the weeklong program.

What other educational opportunities could JINA offer that would interest you?

Most common response:
Online Q&A or Lecture Series with physicists

PAN was cool and interesting and inspiring. I was excited to be around the expensive equipment. I liked talking to all the people that work at NSCL that love what they do. I liked experimenting and experiencing a hands-on idea of what the experimentalists here do because that solidified the idea in my brain. I'm glad I came. I didn't know what to expect, but I liked what I got. A lot. Be sure to let all the staff at NSCL that I'm glad they let us in here because now I understand what they do...and it's cool stuff!

Group photo at ND



Group photo at MSU



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