Tackling Renewable Energy Education

How might we influence Atlanta high school students’ perceptions and knowledge concerning renewable energy through hands-on classroom and lab activities?

Importance of the problem:
- Renewable Energy is not a standardized component of U.S. Public Schools
- The lack of baseline knowledge of renewable energy leads to uninformed energy consumers
- Uninformed consumers impede renewable energy research and development

Solution:
In order to combat the lack of renewable energy knowledge amongst teenagers and change their perceptions in favor of renewable energy, a one day presentation and two to three day lab will be implemented in an Atlantan high school physics class. The solution will offer a hands-on, practical approach to renewable energy education along with helping to educate the youth and allow them to view renewable energy more favorably.

Objective I:
Goal: Gauge base level knowledge of target audience via a Lunch-and-Learn
- Pre and post-tests help evaluate understanding of students; success is measured by improvement
- Hold several meetings with Greenberg to determine depth of teaching
- Successful when base-level is determined

Objective II:
Goal: Develop a curriculum that accomplishes the following:
- Ensures students improve baseline knowledge
- Teaches concepts of renewable energy sources in the context of a physics classroom environment
- Teaches problem solving with hands-on lab
- Successful when curriculum has met the above requirements

Objective III:
Goal: Implement curriculum & gather feedback from teachers and students
- Decide frequency and method of obtaining feedback
- Observe how well the curriculum is received
- Use predetermined process to analyze surveys
- Successful when data and feedback has been analyzed

“I know more about [renewable energy] now and it interests me”
- Woodward Student

Actions taken:
- Created and submitted an IRB protocol in order to receive authorization
- Attended Mr. Greenberg’s classes for the first two weeks of April
- He presented a lecture on renewable energy
- We observed and assisted as students in the AP Physics class completed the renewable energy lab
- Recorded observations and graded pre and post-tests

Future directions:
We plan to improve our current curriculum and to expand our study to other classes at Woodward Academy, such as AP Environmental Science and AP Economics courses. We also hope to expand to other schools in the Atlanta area. We hope this solution will lead to a more informed consumer base for renewable energy in Georgia.

“Many [people] had told me that it was not a smart use of resources, but I definitely think they should be used more.”
- Woodward Student

Results:
We implemented in two sections of an AP Physics class. Despite some outside limitations, we were able to see that our program did change the perceptions of the students. Due to outside factors, our time in the classroom was cut short by two days which caused the program to be rushed, so the students did not explore renewable energy as much as our plan intended.

There was not a statistically significant difference between their knowledge of renewable energy before and after our presentation. However, for the program as a whole, the student said their perception had been changed ‘some’ which is a very positive indicator.