Changing the World One Solar Car at a Time

When I first discovered UNI FREE at one of the NE Iowa STEM Festivals I was fascinated with their solar cars and bike pedal power, but Pat Higby taught me that UNI FREE is much more. As I stepped into the FREE classroom, Pat took me by the hand and began showing me, rather than telling me, what UNI FREE was all about. We experimented with the solar car kits and wind turbine kits. She even let me experience them on my own and I discovered that I need more practice producing wind for the turbines.

“The CEEE is a building, the center for energy environmental education. Tom Harkin was able to get the funding for this building and it is the first modern green building in Iowa. We are an organization, Fabulous Resources for Energy Education (FREE) and we are administered by the CEEE.”

UNI FREE does three big things a materials loan program, professional development workshops, and energy outreach for Iowa youth.

The Loan Program: “It is a free loan program, which means these can be loaned out to boy scouts, girl scouts, schools, 4H, anybody willing to teach about energy gets to borrow our kits. They come in a bag. So you get a bag and usually you have two kids working on it. They build their little car and they learn about electric circuits and lot about solar panels. We love it, every time there is a problem that has to be solved they are learning something. And it is such a hoot to watch those kids the first time they set their car down on the ground and it goes backwards and their little faces are just puzzled ‘like what’s going on?’ You could go up and tell them how to fix it but that’s not going to teach them anything. So what you do to fix it? And there are a few ways to fix it, but we leave it up to them to try and figure it out, because we want them to be problem solvers and that’s the hard part for teachers, not just telling them how to fix it. We also have our junior wind turbine [available for loan].”

Professional Development: “Part of the way we want to do that is our professional development - I want it to go online as a MOOC (a massive open online course) so you can take the course for free if you want to get a certificate.” Teacher may also have an option to take the MOOC for credit for a small fee.

Outreach: “We did a fabulous job with outreach this summer with our Science of Energy program. We offered two different programs. One was on solar energy with the solar cars and the other one was on wind energy. I sent an email to the state librarian and she sends it out to every librarian in the state. It was just great and it allowed us to do so much outreach.”
The success or failure of our future is going to rely on the students and teachers of today. So we have to support the students and teachers of today because that is going to guarantee our success in the future.”

- Pat Higby

UNI FREE provides kit loans for UNI Student’s as well. “As [UNI pre-service educators in] level 1, level 2, and level 3, you have to go out and do something with your class. You can always borrow these material/resources to take to your classroom. These resources are free for UNI students to use and borrow. In fact I had one UNI student, who student taught in Japan and she took a few kits with her to use and demonstrate.”

When I asked Pat and her student workers, Tracy and Maddie what made UNI FREE so great the response was unanimous. They love knowing what they do has an impact on students.

“The workers are pretty great. I think the best part of this job is when kids are doing the solar cars and they start questioning if the car will even work. And then they get out in the sun and car goes! And their face lights up. And you know you have made an impact on the kids,” said Tracy.

Maddie who is just joined the UNI FREE team a few weeks ago talked about how excited she is to be a part of FREE. “I didn’t know student teachers can borrow our supplies and what this is all about. I am excited to learn and I think you guys do really great work and I can’t wait to be a part of this team.”

Pat concluded with her thoughts of why UNI FREE is so great for the public. “Having been a teacher myself I know how hard it is to get your hands on materials because our schools budgets are in really bad shape, for me to be able to help teachers teach I think that is important. You know teachers are probably one of the most underappreciated people. The success or failure of our future is going to rely on the students and teachers of today. So we have got to support them because that is going to guarantee our success in the future.”

UNI FREE supports the Vision & Mission of UNI by engaging UNI students, faculty, & staff in STEM campus programs & outreach for K-12 students and educators.

If you are interested in being featured for one of our STEM Stories please contact us. We would love to hear your story.

Contact Us

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