

School Name: Scituate High School
Project Title: Scituate High School NEED Project

Advisor's name: Shannon Donovan

Summary:

This year, our project focused primarily on outreach to elementary age students. We spent the fall learning and practicing presentations. We traveled to two local elementary schools once each week from January to April and used NEED materials to teach them about the forms and sources of energy, how energy changes form, how a basic motor works, the concepts of electricity and magnetism, and efficiency and conservation. We also engaged in small group discussions with the students so that they could recognize the forms of energy that they use regularly. With the ideas generated from these discussions, the students transitioned into making videos, thinking about what their own ideas about saving energy would visually look like. As a culminating event, we hosted a film festival in which the groups shared their videos in front of an audience. Additionally, we are hosting our annual plant sale again this year to encourage local food production to reduce fossil fuel consumption from shipping food long distances. We grew and donated hundreds of pounds of food grown in our school garden. We are continuing to recycle ink cartridges to help reduce the waste produced at our school. We assisted with games and events to teach hundreds of third grade students about clean water and energy at the annual Water Festival.



NEED Workshops for Teachers

Goals: To learn about different aspects of energy using NEED kits and share what we learn with teachers so they can start using NEED materials at their schools.

Activities and Tasks: We attended a workshop for teachers with Ms. Donovan and helped with registration and trouble shooting during the different activities. We set up and cleaned up stations and activities.

Energy Content and Resources: All of the materials at this workshop were from NEED. Students from Nathan Bishop also came with NEED materials that they had practiced with, and they helped lead stations. They did a really great job and had some very cool hats that they made! It made it more fun having them there.

Student Leadership: Joe and Brooke were our team leaders at this event. We are all helping at another workshop coming up in May.

Evaluation: We had the teachers complete pre and post workshop polls that showed us the teachers' progress in their energy knowledge. Our big goal with this project is to continue to get other schools involved in NEED. To do this, getting teachers involved and educated about the NEED Project is essential.



Elementary School Outreach – Our biggest impact this year!

Goals: Educate the younger generation to get them interested in energy and thinking about energy consumption and efficiency with a primary focus of getting them to recognize what they can do to save energy.

Activities and Tasks: At two schools with classes of 20 students each, members of the Need Club along with parent and teacher volunteers worked with students grades K-3 to teach them about energy. Activities for each lesson included energy bingo, hands-on activities involving magnets, motors, generators, Building Buddies, and various other NEED kit materials. Once the students had some knowledge of energy, we transitioned into making videos to promote saving energy. The students brainstormed ideas and with NEED members as well as volunteers, the students were able to participate in a video making project.

Energy Content and Resources: Almost all materials used in our program were NEED kits and activities. Lessons included forms of energy, sources of energy, how a basic motor works, and magnetism. Ideas about saving energy were recorded on sticky note posters and hung around the room. Video making and editing was done on iPads with green screen technology.

Student Leadership: Members of the club were responsible for organizing and leading groups of 4-5 elementary school students. Student leaders had to facilitate conversations about energy with the younger kids and supervise/run video production. Tina, Aaron, Maya, Brooke, and Joe ran the club at Clayville School on Tuesdays. Ethan, Ellie, and Lexus ran the club at Hope School on Thursdays.

Evaluation: Teaching and making a video with such a young age group was a big challenge! Despite the children having very basic reading skills and limited exposure to video making, the elementary students produced very delightful videos with relevant content about saving energy. Over 300 community members came to STEAM Night. The elementary Principals all sent out Tweets recognizing student accomplishments, and Mr. Hassell featured our event in the weekly newsletter. We made prizes on our 3D printer.



Making Storyboards for the Energy Videos

- ▶ After the first 6 meetings where we did Science of Energy , electricity, magnetism, and efficiency and conservation activities, our elementary teams brainstormed and then created a story board as part of the planning for their energy videos. After storyboards were done, we started the gathering images with the teams and putting them into Dolink on the iPads. Then we gathered any props and started our greenscreen filming. Finally we edited and uploaded the videos. Unfortunately we don't have a lot of pictures of our after school club sessions because Ms. Donovan was teaching the robotics club while we led the NEED Clubs, and teaching these little ones took all our attention.



Film Festival

Goals: Showcase the work of the elementary school students in their efforts to create a video about saving energy. Raise awareness in the community about energy consumption and ways they can save energy.

Activities and Tasks: For the event, each video that the students created during the after school workshops was showcased in front of a packed audience of approximately 500 people. Each audience member casted a vote for their favorite video, and a winner was announced at the end of the night. Our high school club also made a short video using green screen technology that we learning through doing the elementary clubs. <https://www.youtube.com/watch?v=Pvn7bvuTMXA>

Energy Content and Resources: As the film festival was the culminating event of the after school program for the elementary school students, the videos contained a lot of the knowledge that the students took away from what they learned over the weeks they spent learning about energy. The videos were projected in the Scituate High School auditorium for everyone to see.

Student Leadership: Student volunteers allowed for the night to go smoothly. Students managed prizes and tallied votes from the audience. Students were responsible for ensuring that the video they produced with his/her group of elementary school students was uploaded and ready to present.

Evaluation: The audience participated actively through how they voted for the videos. Many parents were impressed and surprised that their children were able to produce a video, and really enjoyed viewing them. Based on reception and feedback received on the night of the film festival, we believe that the event was a great success.

Videos:

We had five teams of students K-3 at Hope School, and 5 teams at Clayville School. North Scituate had 6 teams led by our Middle School Need volunteers and parent volunteers. Each team made a video and showed it in the auditorium at STEAM Night. We made a series of awards and had voting on Best Energy Message, Most Creative Story, and Most Creative Props or use of Technology. The video submitted with our project has a sampling of the videos produced by our elementary friends. For the full playlist, visit here:

<https://www.youtube.com/playlist?list=PLyROAj4DUxzA3UUebtu7klga5hYBI3tgY>



1 Hope 2
Shannon Donovan



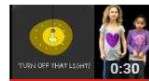
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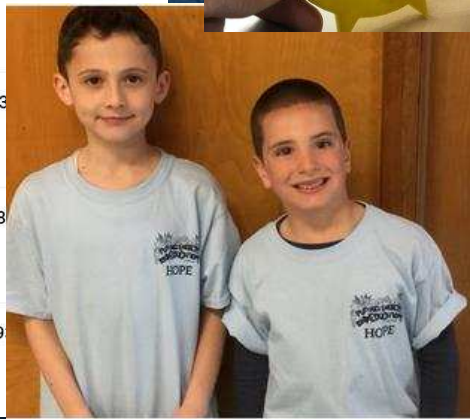
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5 Hope5
Shannon Donovan



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Celebrating with High-Five Friday!

Community Service: Reducing Transportation Fuel Use by Growing Food for our Community

Goals: 1. Grow food. 2. Donate food to local food kitchens to help the community. 3. Increase local food production to reduce fossil fuels use from trucks shipping food.

Activities and tasks: We grew turnips, onions, carrots, potatoes, peas, beans, sweet potatoes, and corn (from seed we saved). Our garden is located in an area that many students pass by to raise awareness of our efforts. We donated hundreds of pounds of food to the food pantry at Trinity Church in town and to the RI Food Bank. In the spring we had also donated hundreds of plants to different schools and some community gardens. We raised these plants ourselves in our greenhouse and cared for them until they were delivered.

Energy Content and Resources: We used transportation fuel info books provided by NEED. Seed donations were helpful to allow us to grow a variety of foods.

Student Leadership: Everyone in the club as well as students from other classes helped out with seeding, transplanting, weeding, watering, harvesting, and sorting. This was a big project that takes place throughout the entire growing season, so lots of people had to help out over an extended period of time.

Evaluation: We donated hundreds of pounds of food to the food bank and hundreds of plants to other schools for their gardens and to a local community garden.



Plant Sale

Goals: Educate the local community about growing food locally to save transportation fuel. Raise money for future NEED Club projects.

Activities and Tasks: Sow, nurture, and sell plants of many different varieties. Provide seedlings for school gardens at our school and several others Educate other students about how to grow different plants and the growing process. Transplant seedlings into larger pots while keeping everything organized. Provide information of the different varieties of plants to be distributed to buyers.

Energy Content and Resources: All plants are grown in the Scituate High School greenhouse. We have a supply of compostable flower pots and all-natural potting soil. The process of growing plants from seed is a valuable process that is used to educate other students within the school about the process and how growing food in your own backyard saves energy through decreased transportation fuel and less stress on large scale agricultural establishments.

Student Leadership: Students provide the means for getting all of the seeds planted and transplanted. Student volunteers on plant sale day assist in selling the plants and educating buyers about the different varieties of plants for sale. Students also made and shared a video about the importance of growing food locally.

Evaluation: This year's plant sale will be on May 12 & 26, so this part is not complete. Last year's event was a great success! Extra plants were donated to a local community garden.



Water Festival and Drain Labeling

Goals: Educate young elementary school students about the importance of protecting the environment and the importance of resource conservation through a variety of fun games/activities.

Activities: Every year the Scituate High School NEED Club volunteers for the Northern Rhode Island Conservation District and The Providence Water Supply Board by setting up "Water Festival" at Camp Aldersgate. In addition to those activities, the NEED Club showed the children their "What Can One Person Do" video, showing how one person can make a big difference in saving the environment. The elementary school children then wrote their own "What Can One Person Do" cards and displayed them at the event. The children had a very fun time thinking about how they can save the environment for their future.

Energy Content: Over 300 elementary children from the surrounding school districts participated in game such as Scoop the Poop, Water Drop Roll, and The Watershed Parachute Game. These games taught children ways to protect the environment from harmful waste found in everyday life. For the "What Can One Person Do" video, we showed them many ways to save energy and protect the environment we live in.

Student Leadership: Students in the Scituate High School NEED Club went around their school asking teachers and faculty what they can do for the environment. They compiled the "What Can One Person Do" video which we shared at this event:
<https://youtu.be/NCofvhP16v0>. We also set up the "What Can One Person Do" activity for the elementary students.

Goals: To prevent water pollution

We helped label drains in North Scituate to remind people that anything that goes on the ground can get in the drain and then get into the reservoir. If pollutants get in the reservoir, it will cost more money and ENERGY to make the water drinkable. 60% or the people in our state drink the water from OUR town!!!



Water Festival (cont.)

Keeping water
clean saves
energy!

**Scoop the poop
relay race:**



Water Drop Roll:



Recycling

Goals: Reduce the amount of waste produced by the school and community. To reduce waste by encouraging reuse.

Activities and tasks: We made announcements that we were collecting ink cartridges to recycle them. We collected hundreds of electronic devices from the school and community that were no longer wanted. We gave the recycled materials to a local group that extracts all useful materials from them. We also collected items for a Savers FunDrive. Members of the community cleaned out their closets, basements, and garages and brought us the stuff that they didn't want. We filled a truck and brought it to Savers for reuse and to raise funds for our club.

Energy Content and Resources: It requires more energy to manufacture new products than it takes to reuse resources already in circulation. By recycling, we are saving energy. We are actively trying to expand and improve recycling at our school through recycling different objects and spreading awareness.

Student Leadership: We all teamed up to help move computers for the tech department, to unload cars for people, and to load the truck for Ms. Donovan.

Evaluation: We recycled hundred of pounds of materials and kept it from the landfill.



Series and Parallel Circuits

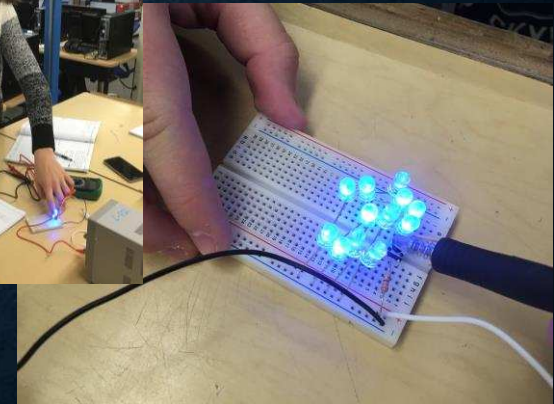
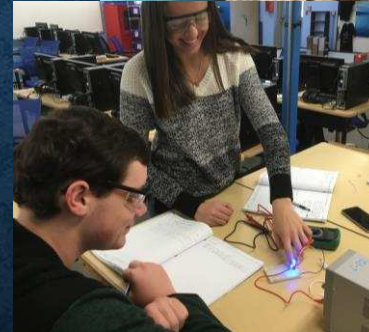
Goals: To teach kids how to build series and parallel circuits

Activities and tasks: We practice using breadboards and components to build parallel and series circuits using LEDs, resistors, a variable power supply, and a button switch. We brought these to North Scituate Elementary School when we did a visit with our CTE pathway team to teach our audience about these things.

Energy Content and Resources: We learned about Ohm's law, diodes, resistors, and different kinds of circuits. We learned how the breadboard can make it easy to try out a lot of configurations fast.

Student Leadership: Andrew and Katie led this station during our visit.

Evaluation: In this visit we announced the upcoming elementary enrichment clubs. North Scituate had more kids sign up than any other school, so I think our visit was a success.



Engineering Bioplastics

Goals: To learn about bioplastics

Activities and tasks: Plastics are mostly made from petroleum which is a nonrenewable resources, so we need to find a way to make good plastics from renewable resources. So, in this activity we researched bioplastics and experimented in making and testing our own,

Energy Content and Resources: We got into teams and did research. We gave Ms. Donovan a list of ingredients, and she gathered it. We made two batches and left them to dry, then we conducted several tests.

Student Leadership: Every group developed their own method.

Evaluation: None of our recipes could behave exactly the way we hoped. We have a lot more work to do if we want to make something usable.



Promoting Outdoor Classrooms

Goals: To show teachers and students how an outdoor classroom can be used as a learning tool that also saves energy

Activities and tasks: Students from Pawtucket spent the day with us getting a tour of our outdoor classrooms and nature trail to take the information back to their school about how these can benefit the students and teachers, save energy, and build healthier kids

Energy Content and Resources: Each student had a station on the trail or served as a guide. Not all of these stations were energy related but some were that talked about renewable resources, resource management (conservation) and watershed protection.

Student Leadership: Each person had a specific role. There were guides and station leaders. Each person had to present their station 9 times as each group visited. After that we gathered for more activities and lunch.

Evaluation: Our guests had a great day. We have not heard yet if they got to build their outdoor classroom.



Evaluation

The photo below is something that our club is really proud of. Our goals have always included getting more kids and teachers involved in NEED as we believe strongly in the "Kids Teaching Kids" model of NEED. All of the kids and teachers in this photo from last June's Youth Energy Conference celebration got involved with NEED because of the efforts of our NEED Club over the last few years. Thank you, NEED, for enriching our high school experience and giving us a way to leave a lasting mark.

