M& M Club: Makers and Museums
Broughton High School
Raleigh, NC

Advisor

Joann Blumenfeld

Members

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Watts Up? Teaching and Engaging the Community About Energy

The M&M Club: Makers and Museum

Exemplary Community Energy Education

The M&M Club members, consists of nine students who love STEM and want to purse STEM Careers in the future. We were excited to concentrate on Energy Topics this year. The members met weekly and learned about energy topics including circuits, hydroelectric power, kinetic energy, Newtons Laws of Force and Motion, coding, environmental impacts of a variety of energy sources, Wind Power and much more. We also did a variety of labs, hands on activities and research to learn about the topics.

Club Members then created carts for visitors of the North Carolina Museum of Natural Science in Raleigh, North Carolina. This Museum has over a million visitors each year and is the largest in the Southeast USA. Members worked in groups of two-three students, preparing materials for a cart on an energy topic of their choice. Each cart had hands on activities for the visitors and information. Each cart had on average 100 visitors per hour. The members taught over 6,000 people. In addition they made a Musem Exhibit for the Sci Tech Expo, part of the North Carolina Science Festival and that event has over 5,000 people attend. The Visitors enjoyed learning about energy with the engaging activities and information. Students taught visitors of all ages from pre-school to Senior Citizens about Energy Topics.

Goals of Project

- Community Outreach on Energy Topics at the North Carolina Natural Science Museum, so visitors have hands on experiences and information that is engaging.
- Learn about a variety of Energy Topics by completing hands on activities, labs and research at school to increase STEM Skills and Knowledge of members and the public.
- Created cart materials on Energy Topics.
- Taught on average 100 per hour per cart with 3 carts per Saturday for a total of over 5,000 visitors of all ages. We taught monthly. The Club met weekly after school.
- Made a Museum Exhibit for SciTECH Expo at the Museum which over 5,000 people attend as part of the NC Science Festival.
- Increase the public's awareness of Energy and How it is created so they can, increase their knowledge .
- Improve members communication, collaboration, organization and other soft skills needed in the STEM Workforce.
- Engage visitors so they can be excited about learning Energy and want to learn more!

Cart Topics:

Physics

Force and motion

Materials used: Made displays

Circuits

How to build Circuits, Parallel and Series, switches, How circuits work, how energy travels

Materials used: Snap Circuits, Squishy Circuits, Lego Circuits, batteries, LEDS, Alligator Clips, energy stick

Wind Power

Designed windmills

Materials Used: Kid Wind Turbines, Carbon Sink or Source

Energy Types

Materials Used: Model, activities to teach about: solar, wind, kinetic power options

Renewable Energy in Homes

Materials : Energy House to teach about: solar, wind, kinetic power options.

Carbon Sink or Source: cards

Energy Awareness With Art

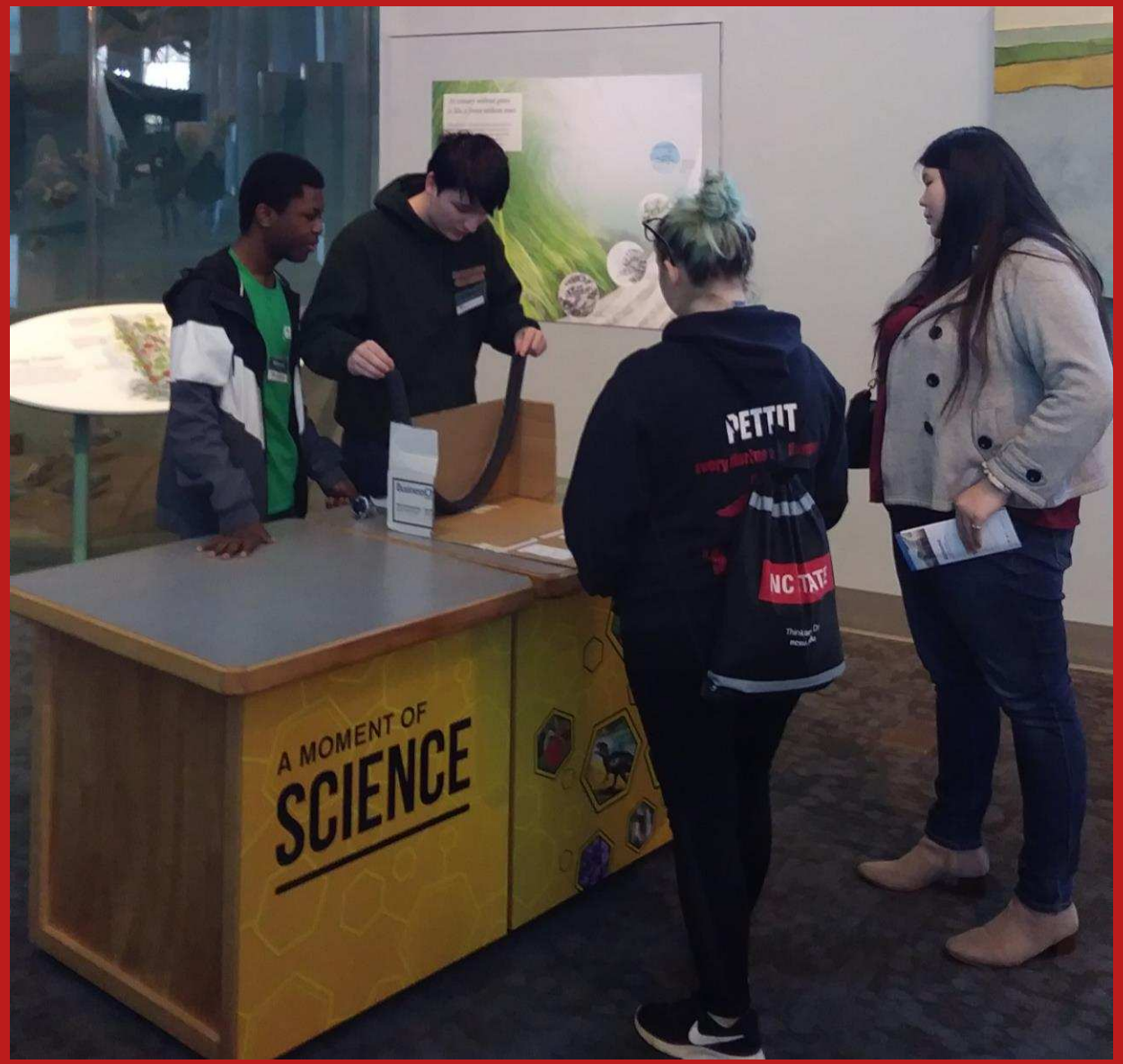
Materials Used: 3 D pens to create energy art

Coding and Robotics in Energy Production

Materials Used: Spero, Coding Game,

Code and Go Robot Mouse, Dash Robot

Teaching Visitors about Newton's Laws of Force and Motion

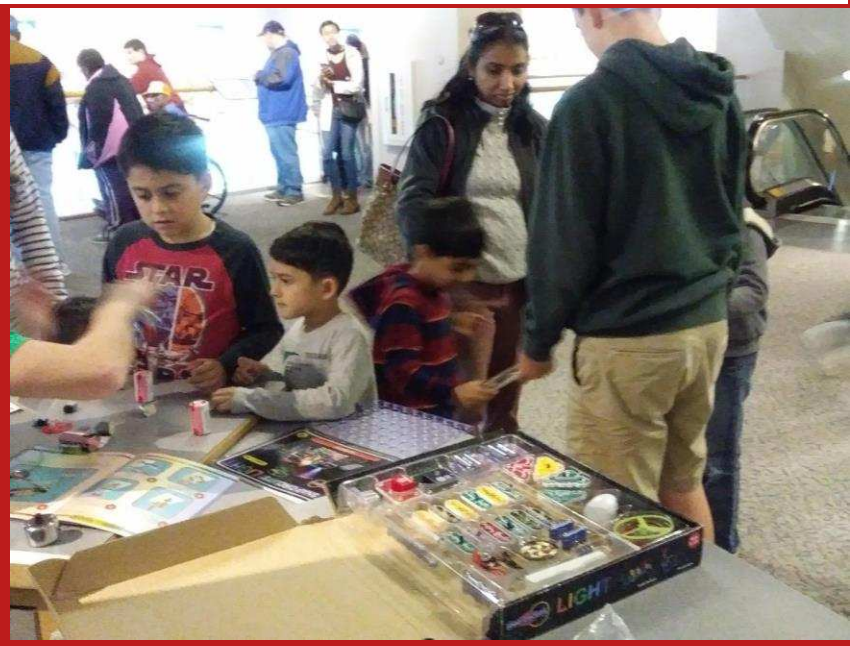


Teaching Visitors About Wind Power, Kinetic Energy, Solar Energy and Electricity with Our Energy House and Models

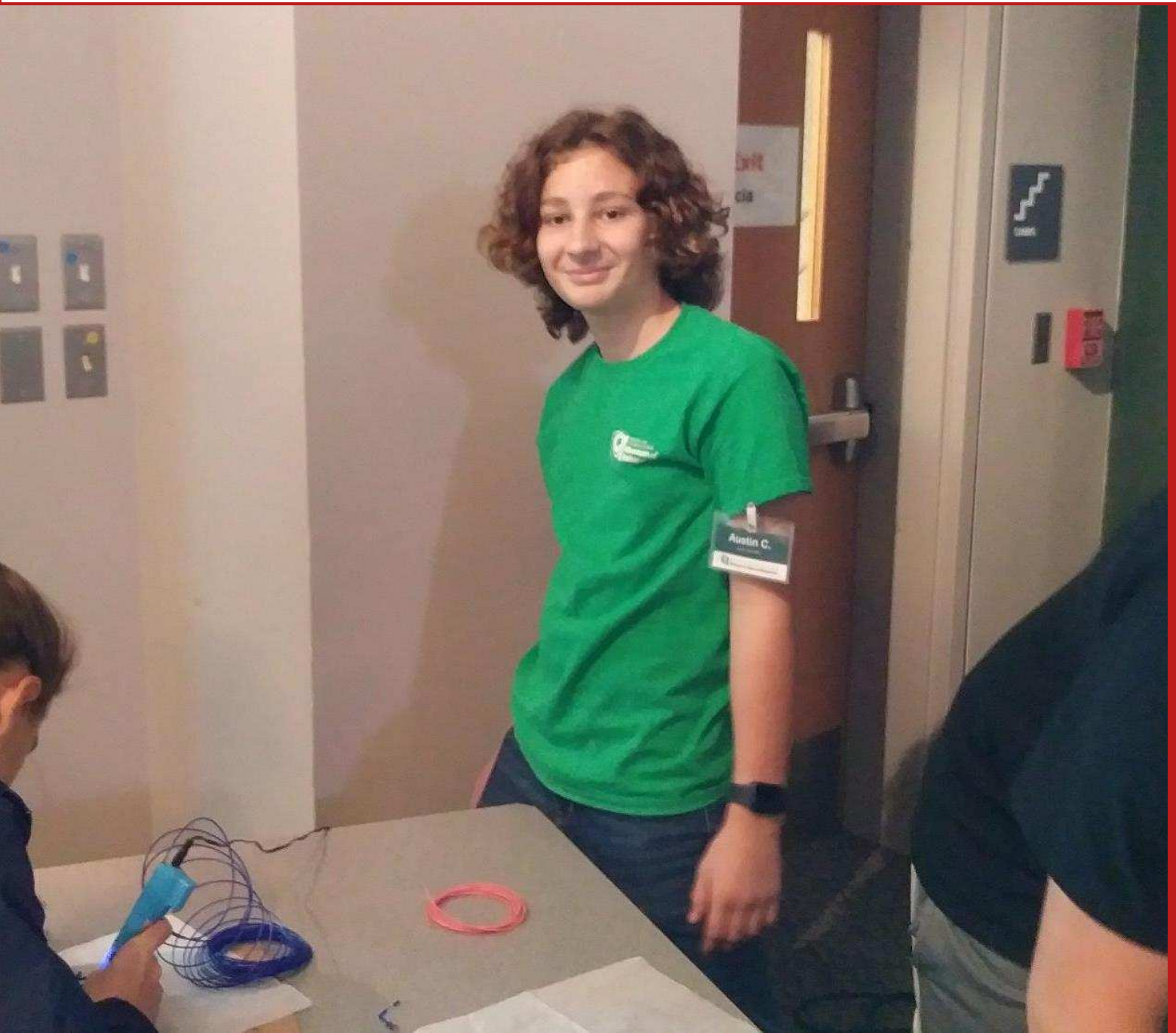
Teaching Visitors about Coding Skills Needed in Energy Production

Designing Wind Blades and Seeing their Electricity Output with Wind Power in Our Engineering Challenge Activity

Teaching about Circuits and Building Circuits with Visitors



Using 3 D Pens to Make Energy Art with Visitors



SciTech Expo Exhibit

Watts Up?
M&M Club: Makers and Museums at Broughton High School
Watts Up? Come learn all about Energy, Electricity, Circuits and much more with engaging hands-on activities.

Made an exhibit for the the North Carolina Natural Science Museum

Attended by over 5,000 people !

The M&M Club Team
With Our Banner for our
SciTech Expo Exhibit
Designed by our Club President.

Summary Of Our Year

We really enjoyed teaching and learning about Energy. We reached well over 6,000 visitors after the SciTech Expo. We learned it does not take a big group to make an impact on the community. We also learned how to develop and display materials, teach visitors of all ages and the importance of community outreach.We were happy when the visitors were excited to do our activities and wanted to learn even more about Energy after they finished.We really wanted to improve the knowledge of people about energy and think about this topic too so they appreciate what they use, how it is produced and works and help them be informed citizens when making individual and community decisions. We also were happy when the kids loved STEM and Energy as much as us! We now know:

Watts Up? Teaching and Engaging the Community About Energy!

The M&M Club Members would like to Thank:

- **Broughton High School PTSA for their support and the supplies**
- **NEED Organization, for Materials, Information, teaching our Advisor Ms. Blumenfeld at the National Energy Conference for Educators so she could help us.**

We really appreciated this opportuntity to learn and teach other about Energy and Watts Up!