

# Hamilton Township High School Environmental Science Class

Project: Rangers Going Green!

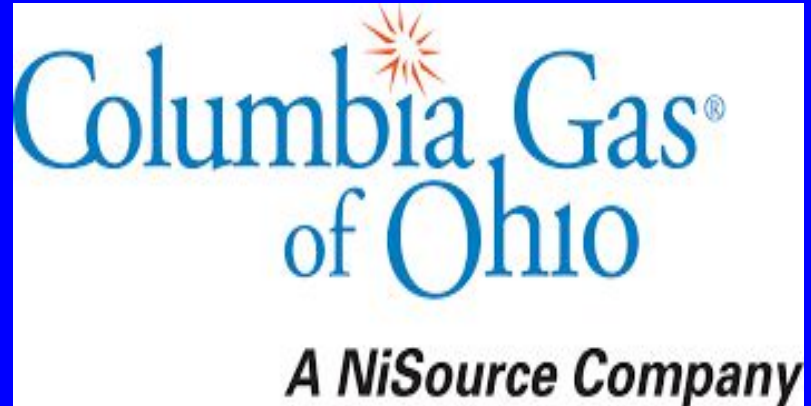
Teacher: Mr. O'Brien



The **GOAL** was to create and establish an **Environmental Science Class** that would educate students on the resources that the Earth provides. Emphasis and awareness was drawn to connecting the human impact on those resources, and the spheres of planet. Assessing and evaluating viable, sustainable, responsible alternatives for addressing our needs as a society were also explored.

Thank you AEP of Ohio and Columbia Gas of Ohio for  
the e<sup>3</sup>smart Program!

Mr. O'Brien was given 145 Energy Savings kits complete with multiple items to help save  
students and their families Energy and Money!



# Lab Activities and Investigations

The learning process is always more memorable or enjoyable when it is hands-on! Thanks to the Ohio Energy Project for helping to make this possible with these fun tools!



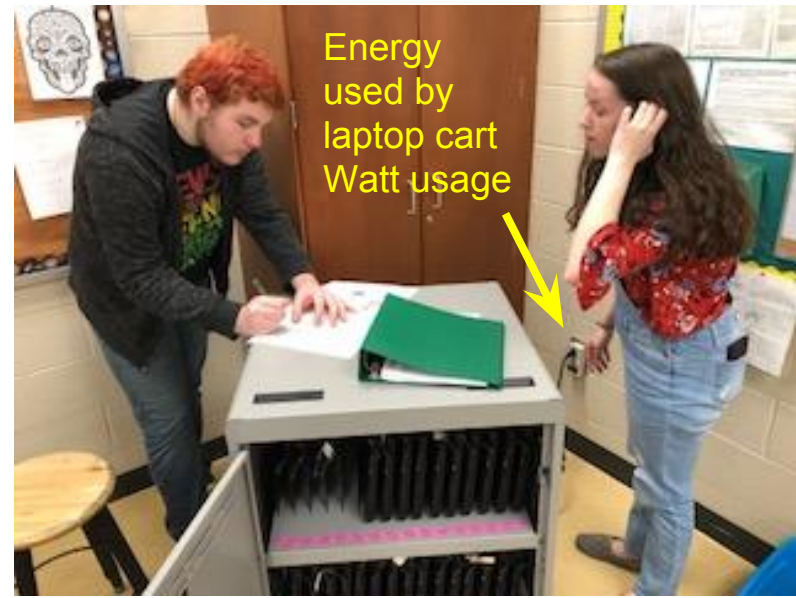
# Activities and Investigations

Insulation, Thermal heat transfer, Types of



Insulated

Not insulated



Energy  
used by  
laptop cart  
Watt usage



## Types of Energy Transfers

Blaster Balls, strike together and they “pop” and “spark”, give off heat, light, and sound

Solar Power Cricket  
under the light



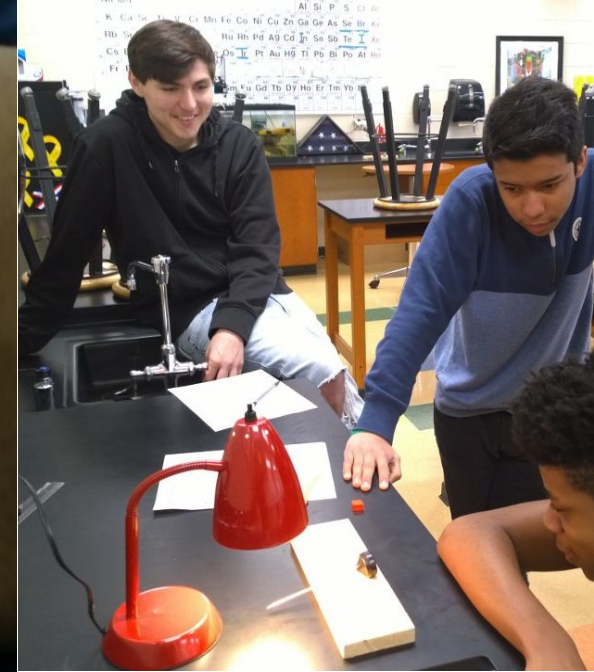
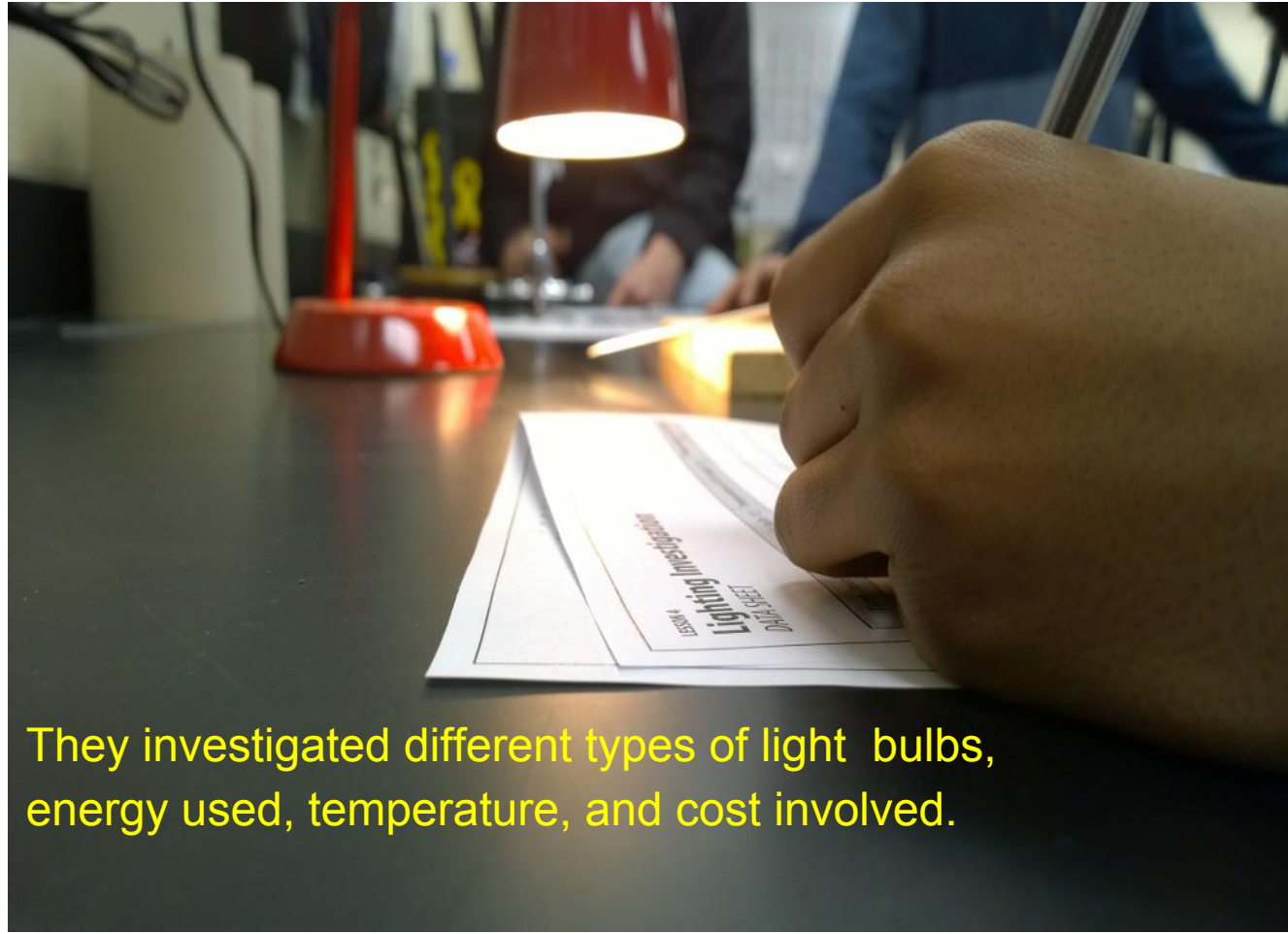




Students learned about electricity, where it comes from, and what is involved to obtain it.



# Electricity

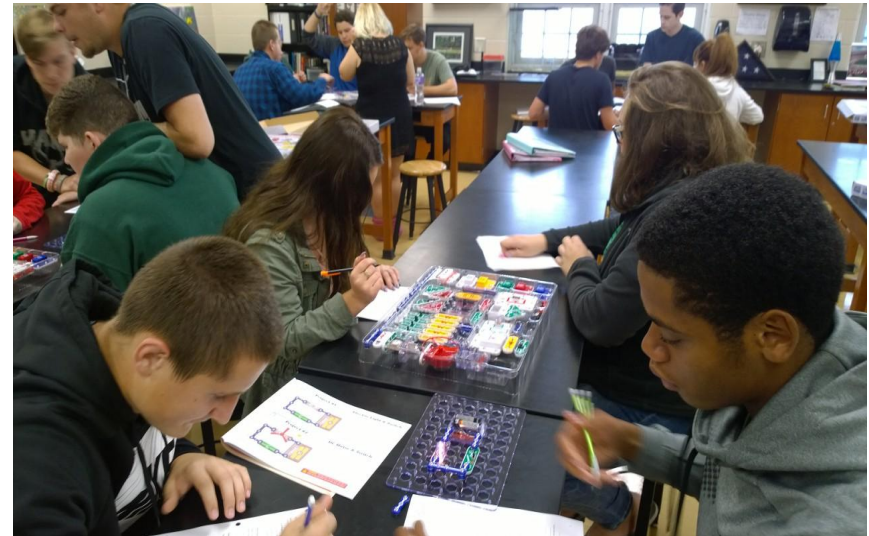


They investigated different types of light bulbs, energy used, temperature, and cost involved.



# Circuits and Watts

They made circuits and investigated how energy, voltage, resistance, amps, series/parallel, and sequence determine functionality







We took a Field Trip to the Sanitary Landfill down the street from our District. Seeing and driving on this this 400 foot tall mountain of garbage gave a great visual as to how much waste is accumulated in their own area, daily. It also provided an opportunity for students to see the importance and urgency of reducing waste, reusing materials, and recycling whenever possible. This facility doesn't have a "pre-sort", so items literally go from the trash can to the garbage truck to the landfill.





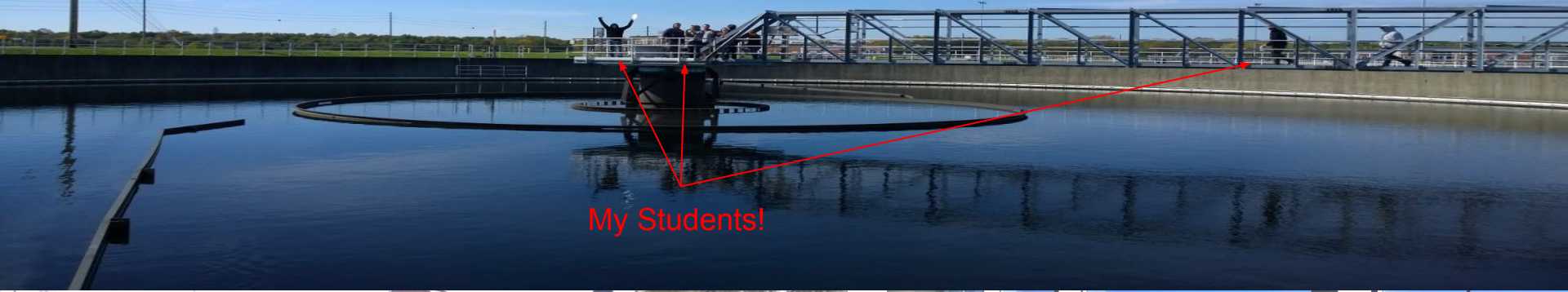
# Thank you SWACO!

- For giving us a Tour
- For informing us on how you are harnessing energy from the released methane through the landfill
- For sharing how you are keeping the water and area safe and protected
- For the Grant opportunity we will be pursuing (application window opens again in July 2018) to recycle more materials from our District so they don't end up in the this landfill



# Thank you Southerly Waste Water Treatment Facility!

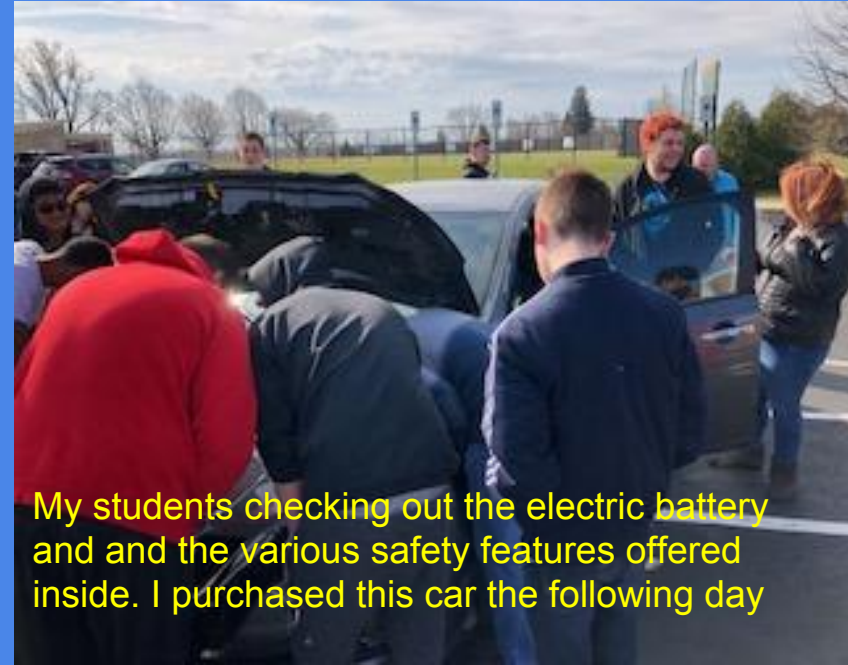
For giving us a Tour and explaining the waste water treatment process, the importance of water conservation, and informing us of the organic sludge used as fertilizer (Com-Til)





# Thank you Nissan North of Worthington!

Thank you Allen Travis for the “Extended Test Drive” of the 100% Electric Vehicle, the Nissan Leaf! This allowed me to take it to school to show it to my students. They were able to sit in it, look under the hood/ trunk, and a few even volunteered for a ride around the parking lot. They were able to hear that there is virtually no sound, reducing not only noise pollution, but also ZERO air pollution because it does NOT burn ANY fossil fuels.



My students checking out the electric battery and the various safety features offered inside. I purchased this car the following day





# End of Year Earth Day Project/Party

Later this week, the Environmental Science Classes will be celebrating Earth Day (April 22nd, 2018) on April 20th (no pics because this date hasn't happened yet) where students will have a "party" watching *The Lorax*. Students will not be permitted to generate any food waste (can't be thrown into the trash can, but may be composted), not permitted to use ANY 1x use plastic, and cannot throw anything into the trash cans (cups, plates, etc.). Everything MUST be non-plastic, reusable, and sustainable.

As part of their year-end project, students must either make (repurpose, reuse,) or purchase an earth-friendly, sustainable item and present it to the class. Part of their presentation/rubric includes photographs of them using their "project" in public, and our Earth Day party affords them this opportunity.

The Senior Class is also selling Reusable Water Bottles to help raise money for their Senior Trip.

# Environmental Science Club and Recycling



Thank you **Mr. Kuenzli (Advisor)** and **Addi Ramsey (student)** for starting the Hamilton Township High School Environmental Science Club.

T-shirts have been designed and are ready to order to help raise awareness and money for various projects for students to be involved both in and OUTSIDE of class. The ESC has also set-up volunteers to collect our classroom recyclable waste, and drop it off at a recycling drop-off location.

The Environmental Science Club will give students an opportunities to help improve our energy use, energy efficiency, and stewardship of our resources in our community. We are super excited to have this club started this year, our first year of having the Environmental Science class

# Energy and Resource Savvy

Our District this year changed out ALL of the Fluorescent light bulbs and replaced them with LED's.

We have been collecting markers all year to recycle through Crayola

We have been collecting CFL light bulbs for proper disposal

Batteries are being collected for proper disposal and to make certain they do not end up in our landfills



# Other Plans and Projects (awaiting approval, and the “green light”)

- Electric Vehicle Level 2 Charging Station Established in the School parking lot
- Create an “Honor Grove” with trees planted in honor of students recently Killed In Action (3) while serving in the military. Trees and local flowering plants would allow for use to earn National Wildlife Federation WildLife Habitat certification and become another green space for pollinators
- Set-up Blue Bird boxes, Bat boxes, and plant trees around campus and retention ponds
- Quick Water Bottle Refill Stations in School
- Motion detectors for classroom lights
- Cafeteria Food composting
- Solar Panels and/or Wind Turbine
- Removing styrofoam from cafeteria