



# HANDS-ON ENERGY

This year our project is divided into 2 parts. One part we did in class. The other part we did in our afterschool energy club. I have been here the whole year I think it's a very fun interesting way to learn science. My favorite parts are that I get to hangout with my friends and learn with them. We have done a lot of activities like the solar oven where we made smores from pizza boxes, cooking mining and more!

-Adilynne

## Ockerman Middle School Advisor: Jennifer Davis



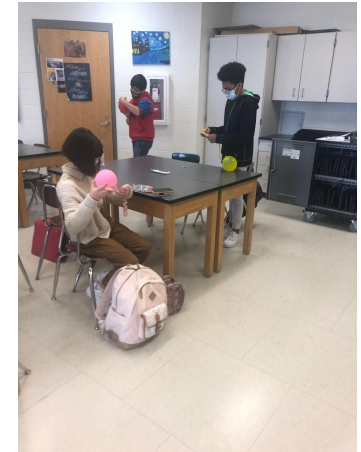
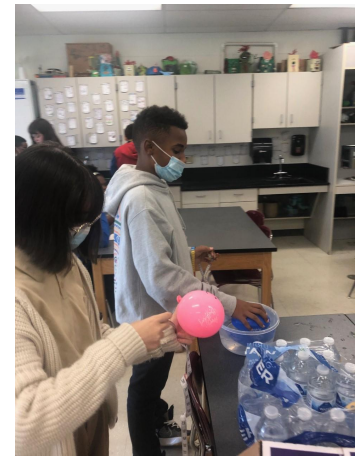
# Part 1: Energy Club

This year we did activities from the Energy Lab of Kids book by Emily Hawbaker.

Meeting 1 Activities:

- Lab 1: Convection Current In A Cup
- Lab 3: What a Gas

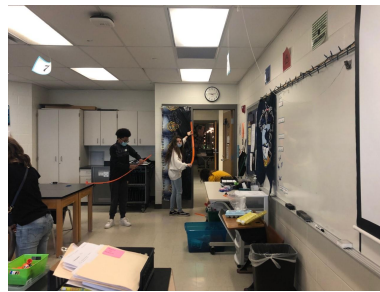
It was neat watching the water slowly change color as it moved up and down. Ms. Davis also showed us a convection tube to make sure we knew what was really happening. At first it was hard to tell how much the balloon changed in the other lab. After a minute in the ice water though it was smaller and wrinkly. -Abdalahi



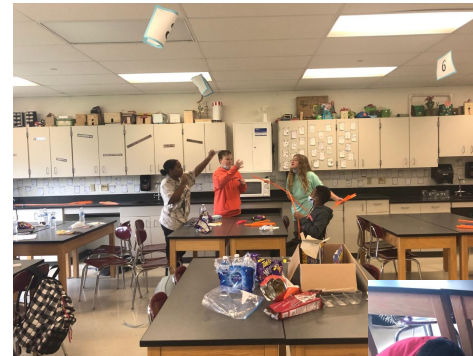
Meeting 2 Activities:

Lab 6: Ramp It Up!

Lab 7: Pendulum



I liked the marble roller coaster we made for Ramp it Up. After we did the regular lab we got to explore kinetic energy by creating a ramp and testing a ramp with a roller coaster. I did a big loopy loops. It was really fun and really cool. -Landen



Meeting 3 Activities:

Lab 8: Slinky Waves

Lab 15: Candy Collector

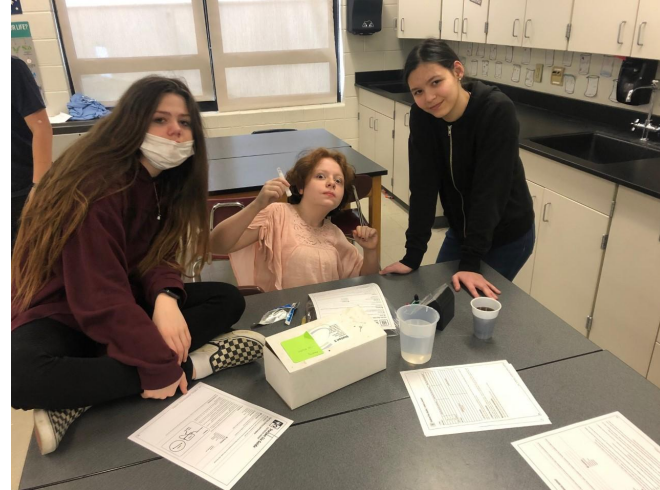
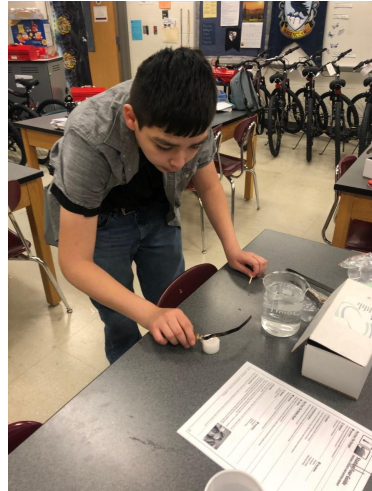
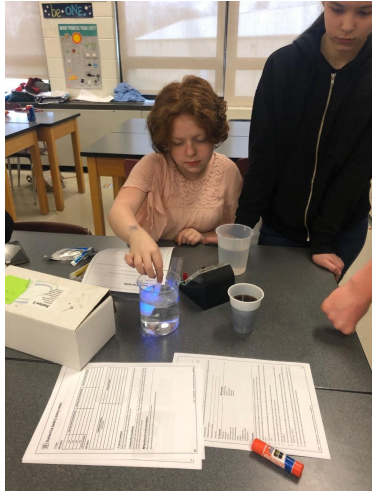
We had so much fun modeling waves with the slinky. We learned about the different kinds of waves and how the energy moves. We also learned about renewable and non-renewable energy with candy collector. The best part was that we got to eat the candy at the end. We do not have any pictures because Ms. Davis forgot her phone that day. -Aiyana



## Meeting 4 Activities:

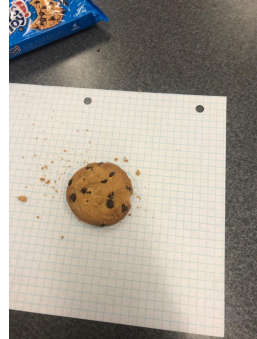
- NEED Science of Energy (Labs 10-14 plus a few extra experiments)

We did six different stations to see how energy transfers from one form to another. My favorite was station 2. We looked at chemical reactions with calcium chloride and water. It got really hot and it was like a hand warmer. I liked it because it was actually something that I might do at home if I got the supplies. It was fun because I got to hang out with my friends and learn something new. I also liked station 5. Instead of the apple battery we did a pepsi battery using two different metals to make it turn on. It was interesting seeing how different metals transfer electrons to each other. -Karma



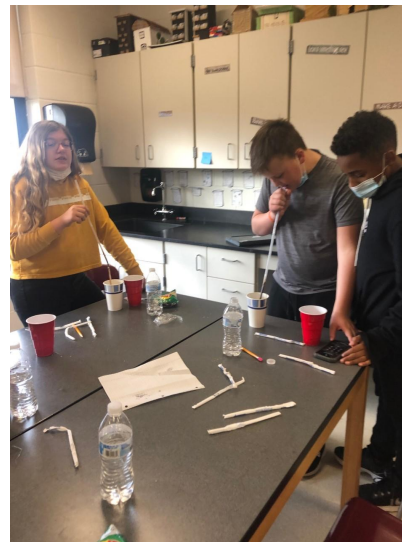
## Meeting 5 Activities:

- Lab 16: Chocolate Chip Extraction Competition
- Lab 17: Getting the Oil Out



This was a lot of fun but harder than I expected. We used toothpicks to mine chocolate chips (coal) from the cookie. I did not do well with reclaiming the land because my cookie was a crumbly mess. I did the best at the getting the oil out. Getting the lemonade through the straws was so much easier than getting the thicker chocolate syrup out, but I could still do it.

-Landen

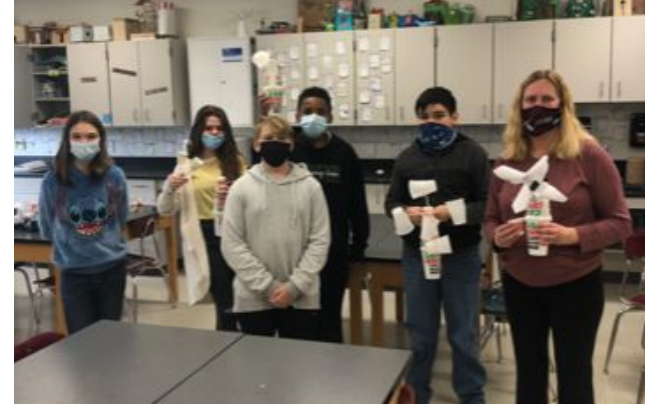


## Meeting 6 Activity:

- Lab 21: Wind Does Work

We made windmills out of cups, wooden sticks and paper. We attached a string to see how many paperclips we could pick up. I picked up the most (almost 100).

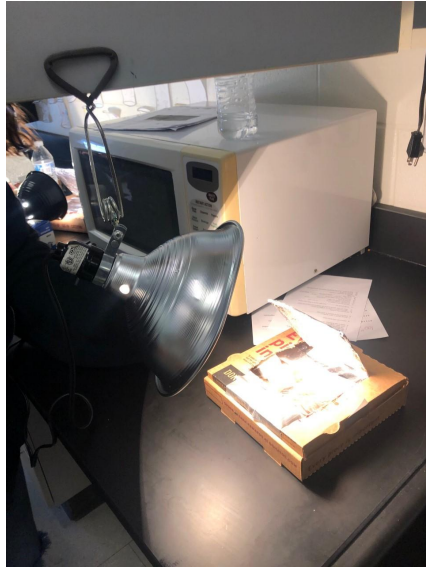
-Landen



## Meeting 7 Activity:

- Lab 23: Solar Cooker

It was a lot of fun making the solar cooker. We used pizza boxes and covered the opening we made with plastic wrap and aluminum foil. The black paper at the bottom attracted the light. It was not sunny, so we used heat lamps to model the sun. The smores too a long time to cook, but they tasted great! -Adilynne

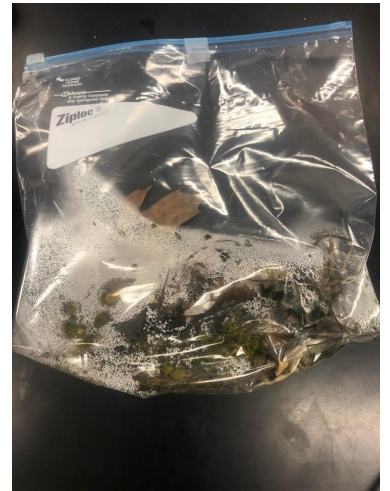




## Meeting 8 Activities:

- Lab 24: Biomass Bag
- Lab 26: Pretzel Power

I liked the pretzels activity we did. We each chose a car that we wanted. Then we tried to get to and from the town using pretzels as gas. The electric car went the farthest because it did not have to use gas. It did have to stop and wait to recharge. It was a lot of fun, and we got to eat pretzels. -Ava

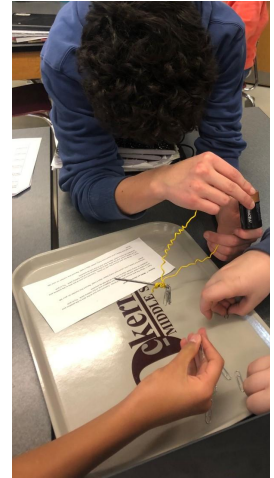
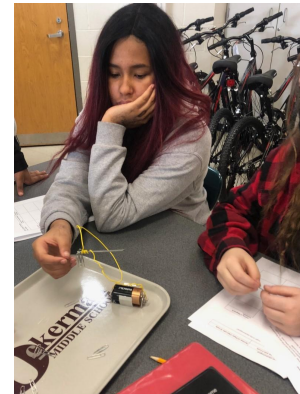
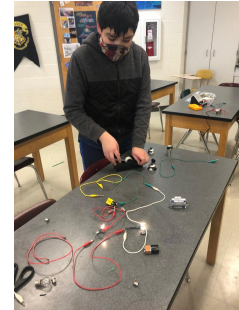
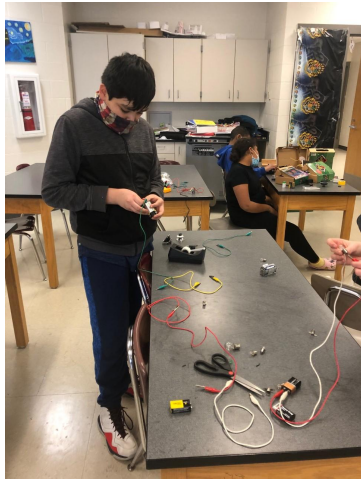
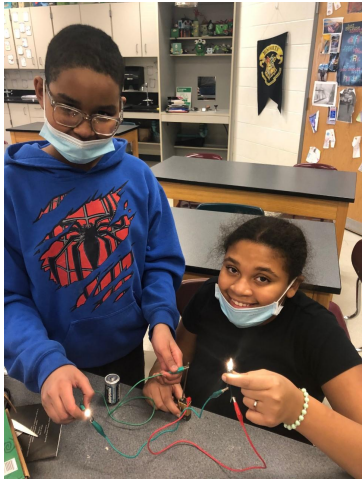


Biomass Bag

## Meeting 9 Activities:

- Lab 27: Electromagwhat?
- Lab 28: Generate This

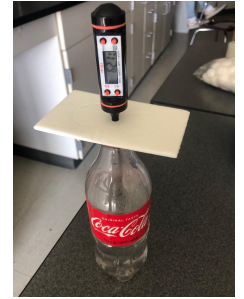
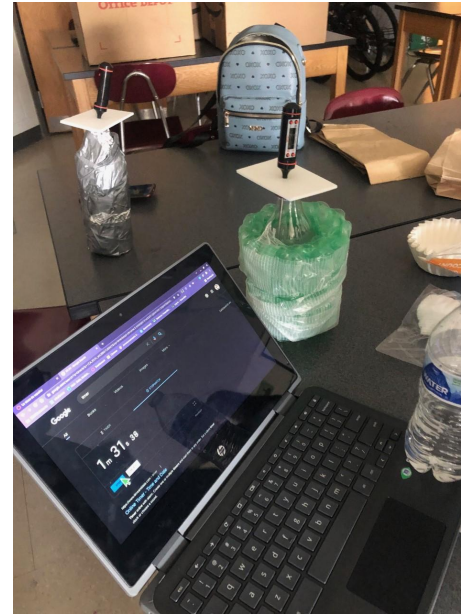
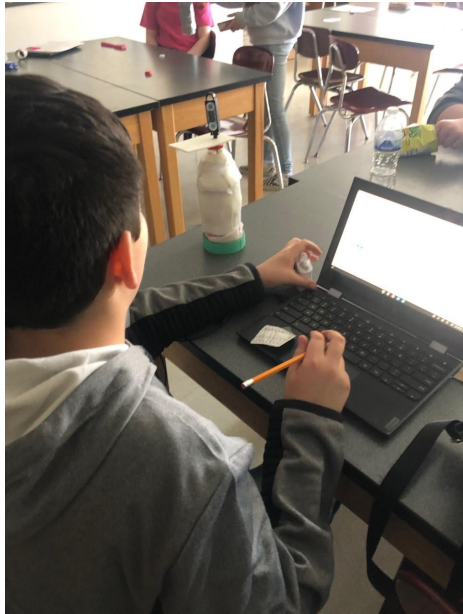
Today we made electromagnets to pick up paperclips. We also tried to use aluminum foil to make circuits. It worked, but not great. Afterwards we used alligator clips to make circuits. We tried to see how many light bulbs we could make light up. -Aiyana



## Meeting 10 Activity:

- Lab 31: Insulators to the Rescue!

We tested to see which material was the best insulator. We measured the change in temperature over 10 minutes to see with one stayed hottest the longest. The bottle covered in foam stayed hottest the longest. --Abdalahi



# Part 2: Exploring Energy In 7th Grade Science

Activities:

NEED Intermediate Energy Poll

Exploring Magnets Lab

Static Electricity Lab

Van der Graaff Generator

NEED Energy Source Expo.

NEED Energy Roundup

NEED Electric Connections

NEED Mystery World Tour

NEED Great Energy Debate

NEED Energy Bingo

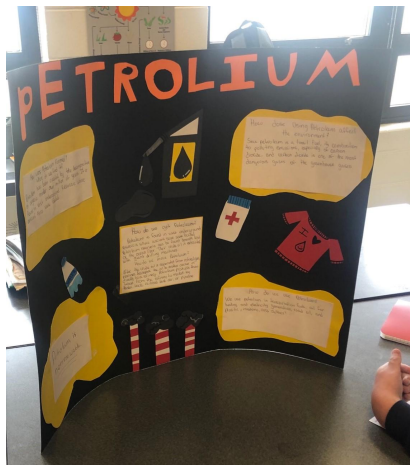
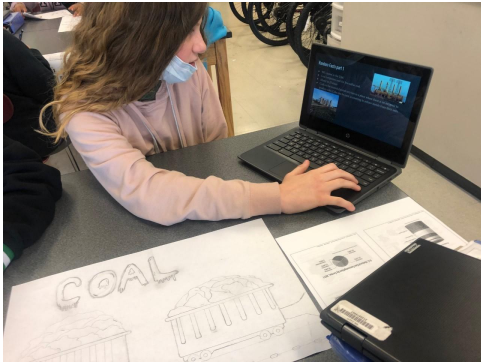
NEED A Cool Coal Story

NEED Using & Saving Energy (Lighting & Appliances)

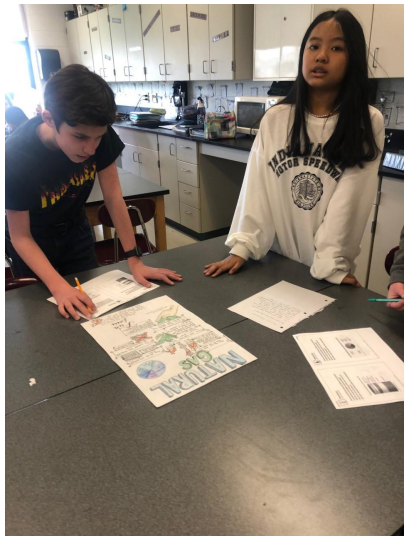
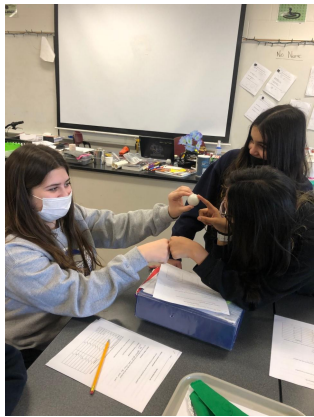


I really liked the Van der Graaff generator. It was a great day because I got to see peoples hair go up and I also liked to see static. When people stood on the stool and they touched it and they got the static charge it was super cool. Seeing people get shocked was also super cool because just to see people get shocked and there hair go up it made me day a lot better. -Jessie

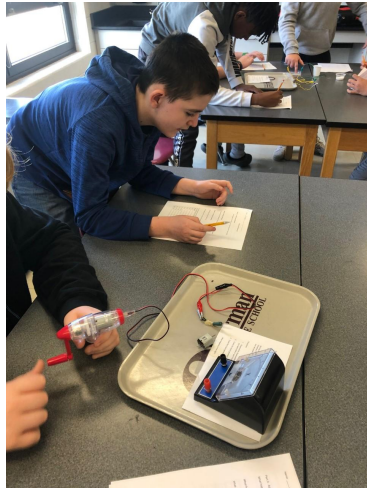
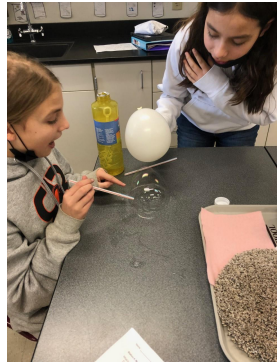
# Energy Source Expo



# Electricity Lab



# A Cool Coal Story



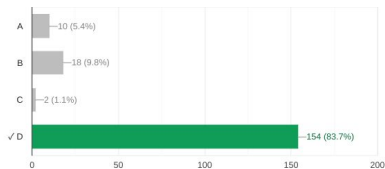
# Data: Energy Poll

Students took the Energy Poll, and then took it again 2 weeks later after doing the energy activities. Students improved on 16/20 questions. Students knew that this was not a graded assignment, which may have impacted effort/results.

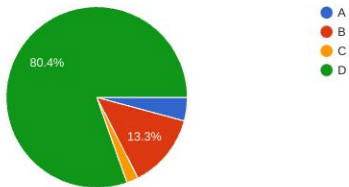
Pre-assessment: 143 students

Post-assessment: 184 students

Q1  
154 / 184 correct responses Copy



1  
143 responses



Question	% Students Answer Correctly (Pre)	% Students Answer Correctly (Post)
1	80.4	83.7
2	42	52.7
3	58	58.7
4	28	31.5
5	56.6	60.9
6 *	73.4	70.7
7	39.2	54.3
8	37.8	47.8
9	31.5	34.2
10	24.5	38.6
11	26.6	46.7
12	9.1	19.6
13	55.2	57.1
14 *	54.5	46.7
15	49	51.1
16 *	47.6	46.7
17	19.6	25
18	30.8	39.1
19	42	44
20 *	42	34.8

# Magnets Lab

