

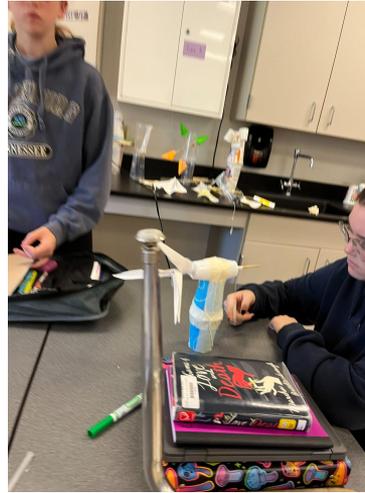
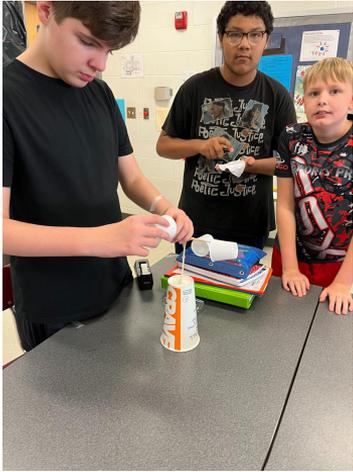
Ockerman Middle School

STEM Explorers

Project Advisor: Jennifer Davis

Engineering Design Challenge: Wind does Work

Challenge: Build a windmill that will lift a tea bag.

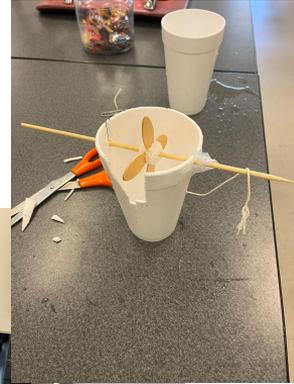
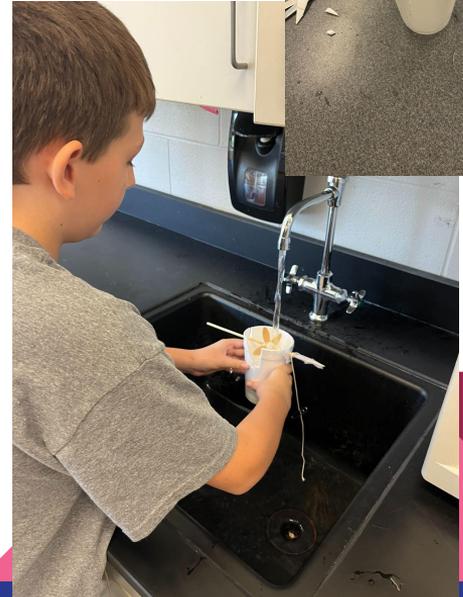


The windmill activity we did this year was all about trying to lift a teabag with the energy from a hair dryer. We did this by creating a windmill that would wind up the tea bag string when the hair dryer was blowing on it. Certain designs worked better than others and there was a lot of trial and error involved in creating the best designs. -Wyatt F.

Engineering Design Challenge: Design a Water Wheel

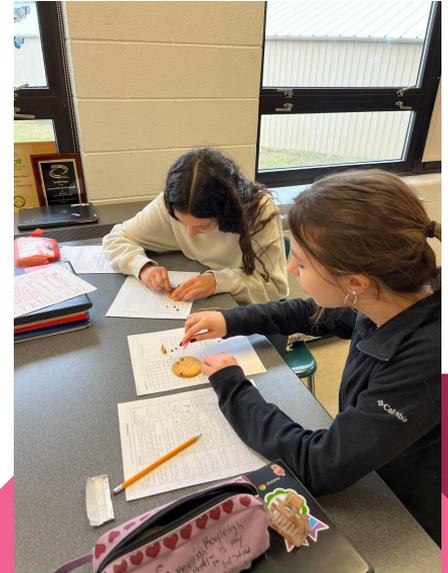
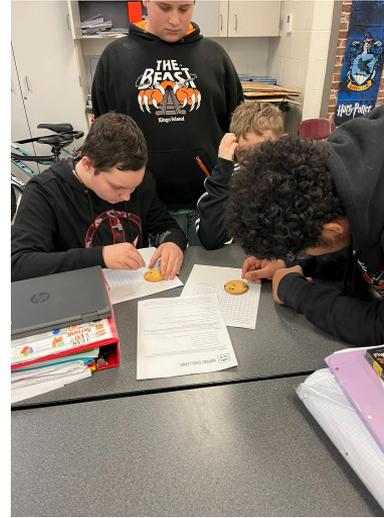
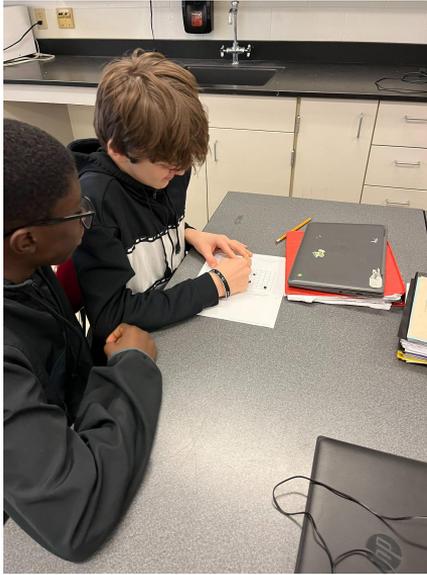
Challenge: Use the materials provided to design a water wheel that spins due to the force of gravity (on the water).

My favorite part was trying to see if I could make it work. -Ella P.



Sources of Energy: Cookie Coal Mining

Challenge: Operate a successful coal mine. Retrieve as much coal (chocolate chips) as possible while spending the least needed on supplies and labor in order to make the largest profits. Make sure to reclaim the land to avoid fines.



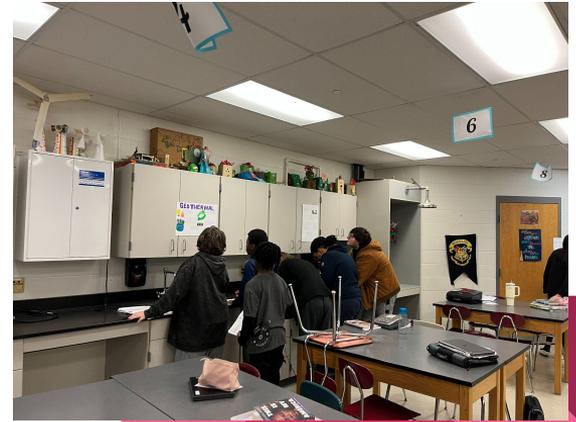
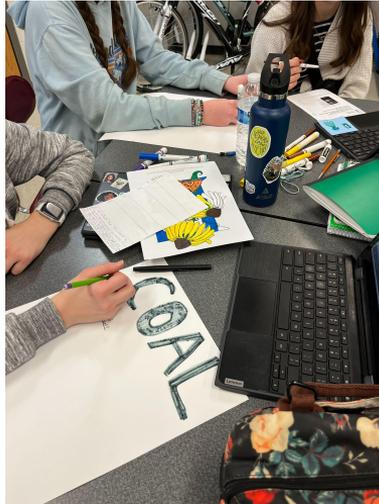
Sources of Energy: Cookie Coal Mining

This activity/learning experience was very fun and immersive. The unit we were learning about was different renewable and non-renewable energy sources and how that can affect the environment and nature. The lab was about how we had a cookie and a certain amount of money and space to dig up the coal (chocolate chips) from the cookie. We had to buy our digging supplies, people we would pay by the hour and the actual mine. The goal was to dig up as many chocolate chips as possible while trying not to destroy the mine, stay in your given space, and not run out of money. After that we were given a minute to dig as many pieces of coal out of the cookie as possible. In the end if all your chocolate chip coal pieces were gone you could by another mine. This activity was meant to show us that pulling nonrenewable resources from the Earth and using them can be risky because eventually some day all of those resources will be gone. This activity/lab was very good and taught us a lesson. -Hailey B.



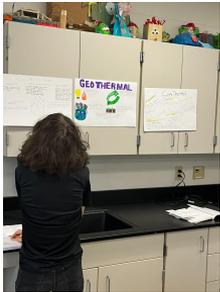
Sources of Energy: Research & Gallery Walk

Challenge: Research the assigned energy source. Create a poster that highlights this energy source. During the gallery walk complete the questions for each of the 10 main energy sources.



Sources of Energy: Research & Gallery Walk

In the Energy Sources Gallery Walk we got to go around the classroom looking at posters for different energy sources that students made. While walking around looking at them we learned the positives and negatives of certain energy sources, what type of things they are used for, how we get that energy, and more. Some of those energy sources were coal, solar, propane, petroleum, natural gas, uranium, wind, biomass, hydropower, and geothermal. To make these posters people got an energy source and had to research it. All in all this project was very helpful to understanding the different energy sources better, and very interesting. -Casey M.



Outreach: Mini Energy Carnival and Demonstrations at Evening of the Arts

Challenge 1: Successfully complete one of the energy games for a prize.

Games: Ring toss, Sources Ball toss, Energy Mystery Word, Sucker Pull, Energy Math (Each game included age appropriate energy trivia questions)

Challenge 2: Model energy transformations (Grapefruit Battery or Potential/Kinetic Energy-balloon car, wind up toy, pull car)

Thank you to Karen Lenihan,
Boone Co. School District Energy
Manager, for donating some
amazing prizes.



Outreach: Mini Energy Carnival and Demonstrations at Evening of the Arts



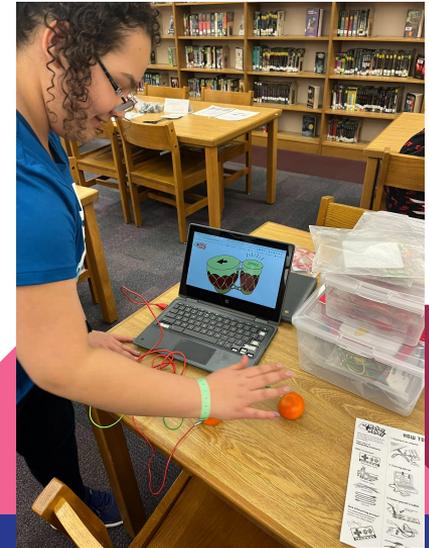
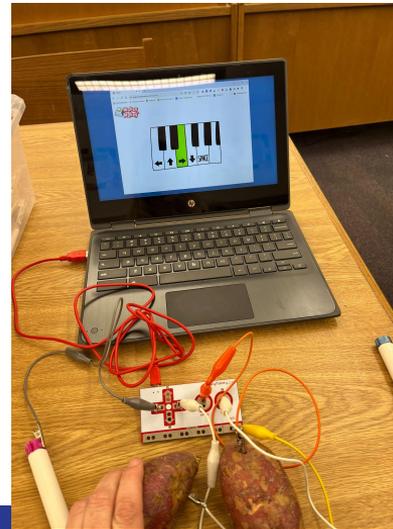
I liked the trivia. It was cool even though I was bad at it. I got to challenge people and I got a reward (prize). -Daniel B.



Outreach: STEM Explorers Event

Challenge: Use the equipment provided at each station to explore energy and other STEM Concepts

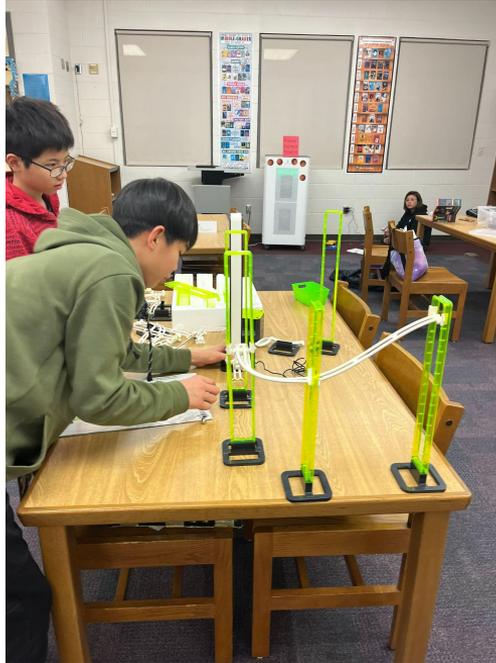
Stations: Makey Makey Circuits, Little Bits Circuits, Snap Circuits, Sidekick Circuits, Marble Roller Coaster, 3D Pens, Vex & Lego Mindstorm Robotics, VR, Solar Chameleon (UV reactive beads)



Outreach: STEM Explorers Event



3D pens were my favorite. Please do this again! -Lily C.



LEGO (Robotics) build was my favorite. -Jax P.



I would like to do more STEM activities like this at OMS -Savannah A.

