



St. John the Baptist Catholic School

Empowering our future with Energy Education

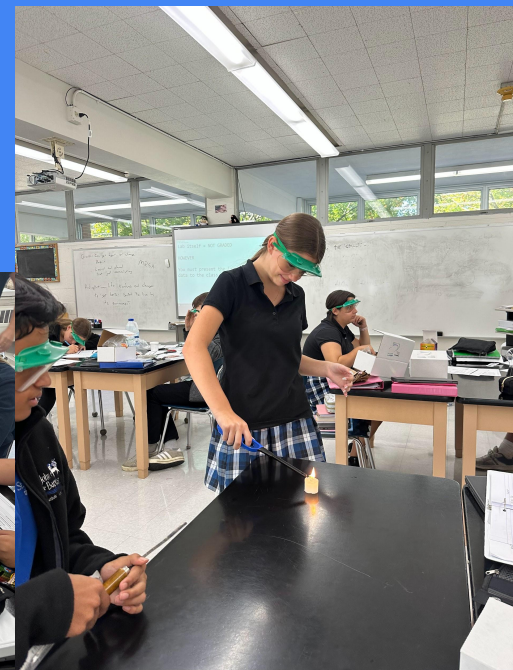
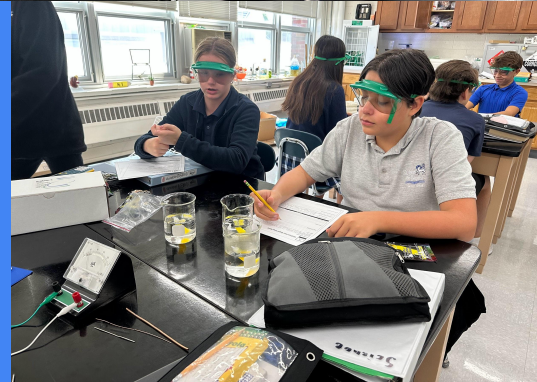
Advisor: Scott Valenta

Goal: The goal of this project was to utilize Energy Education as a means of increasing STEM knowledge and showing us the potential of Energy Careers. To do this, we focused on hands on activities, teamwork, and leadership. We emphasized peer help and ultimately kids teaching kids.

Goal: We needed to start the year by doing a deep dive into Energy and kids teaching kids

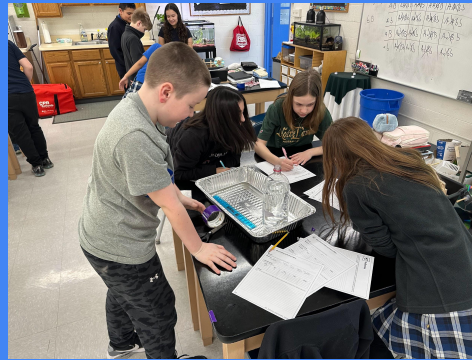
Each classroom pod learned a section of the Science of Energy and created a presentation to teach the rest of the class.

We used this knowledge the rest of the year and started off being comfortable teaching each other.



Goal: To increase our understanding of the engineering and design of Hydroelectric dams

We worked as teams to understand how factors such as penstock height, water volume, and the amount of turbine blades effected electricity output on dams. We shared our data to ensure we had accurate results. Some students were multimeter experts, and ensure each team knew how to use theirs.



Goal: To take what we learned about dams, and use that knowledge to act as production managers of a new dam.

We scouted out real world sites that could house new dams. We created mock designs, and used our data from our experiments to justify them. We created listings for potential jobs for our dam, and considered the relevant stakeholders for our chosen dam site.

Where will you create your new dam, and why is the location ideal?



I chose to create a dam in the San Jose, Rio River in New Mexico. In pictures, you can see the rapids in most parts, which means that there's some energy in the water that could be used for electricity.

Now Hiring at Barrett's Dam

WE ARE HIRING!



Dam Engineer

Position Overview :

We are looking for a Dam Engineer to join our team in the Cody dam off of the North fork Shoshone river.

The salary for this position is \$95,000 per year.

Key Responsibilities :

- Evaluate and design a dam
- Assess safety of the dam
- Work with federal agencies for safety reporting

Requirements :

- Bachelor's degree in Dam Engineering
- Minimum 3-4 years of experience in engineering
- Smart, positive mindset, honest

Benefits :

- Health & Dental Insurance
- 6 Weeks Paid Time Off
- Retirement Plan
- Bonus Opportunity

How to Apply:

Send your CV & Portfolio to:



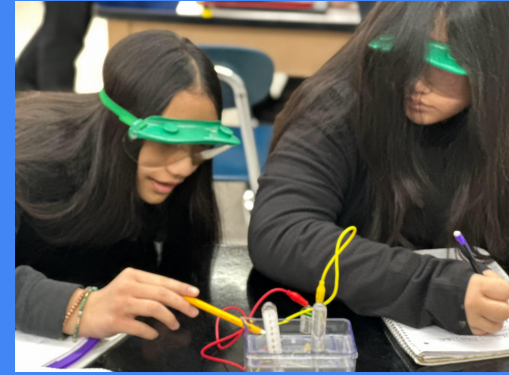
Goal: To step into the shoes of an Exelon intern.

We did this by analyzing our local neighborhood's energy grid, proposing improvements to guard against climate change, creating a model with working power lines, transmission lines, substations, and LEDs, assessing the community and potential jobs, and finally packaging everything in a presentation to pitch to actual Exelon Employees.



Goal: To understand Hydrogen as a potential energy source, with both its benefits and drawbacks.

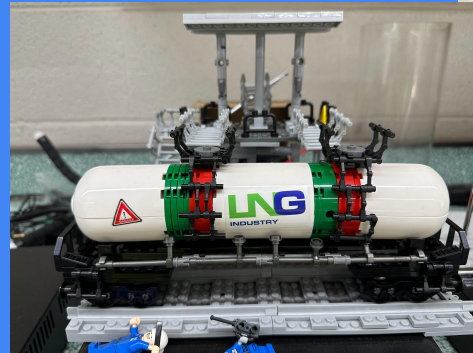
We did activities to see how the voltage of electricity affected gas production. We also found out the ratio of hydrogen to oxygen gas production. We collected and tested our gas. Finally, after doing research, we wrote mock letters to US Congressmen advocated for or against US investment in hydrogen as an alternative energy source.



Goal: To find ways to fit energy into homeroom time.

During homeroom we have time to read or work on a hobby type skill. We wanted to fit energy into this time. We build Legos of different energy related things, such as a natural gas facility, an oil well, and a petroleum processing plant.

We had to work together lots, as homeroom time is limited and Lego sets can be complicated.



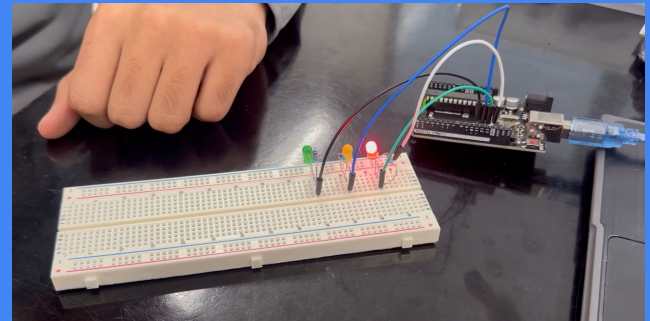
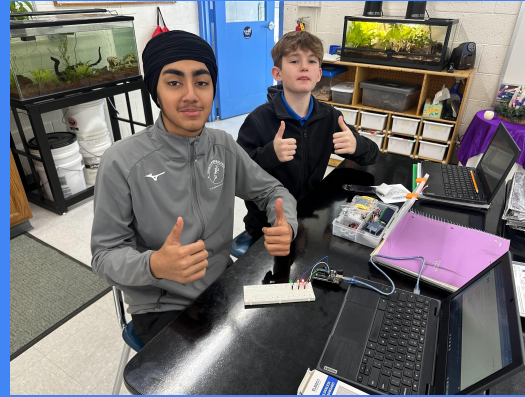
Goal: To understand wind as an energy source.

We found that wind could do work, as we investigated how factors like the number, shape, and size of blades affected the work and electricity production of turbines. We compared paper blades to corrugated plastic, to 3D printed blades. We collected our data on large white boards, and did a walk around to see other groups findings.




Goal: See how computer science and energy overlap.

We learned about Arduinos, and created projects about energy. We utilized temperature sensors, LEDs, photoresistors and more. Some students were code helpers, helping others with their code. Others were experts on installing the parts into the board and helped others with that.



Goal: Getting creative with Energy!

We entered NEED's Holiday song writing contest. We took holiday songs, and rewrote the lyrics to be about energy. It was a lot of fun being creative.

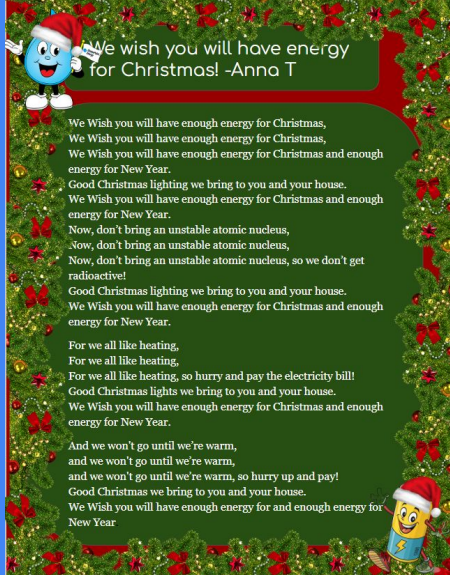


Rockin' Around With Energy

Rockin' Around with Energy
At the Biomass Party Hop
Energy-Bill hung where you can see
All the guests come to a stop
Rockin' around with energy
Let the Wind Turbines ring
Later we'll drink some H2O
And we'll do some deep-mining

You will get a thought of Petroleum when you see
Biomass and Grass are swaying
Deck the halls with TotalEnergies
Rockin' around with energy
Prevent the Climate Change
Biomass swayin' merrily
With the new Energy Exchange

You will get a thought of Petroleum when you see
Biomass and Grass are swaying
Deck the halls with TotalEnergies
Rockin' around with energy
Prevent the Climate Change
Biomass swayin' merrily
With the new Energy Exchooooooooooooooooooooongeeeee

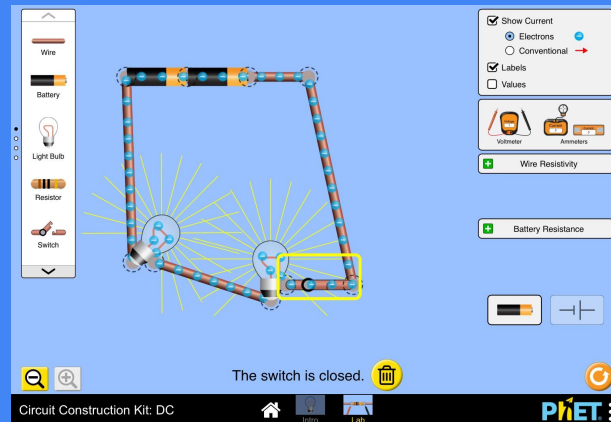
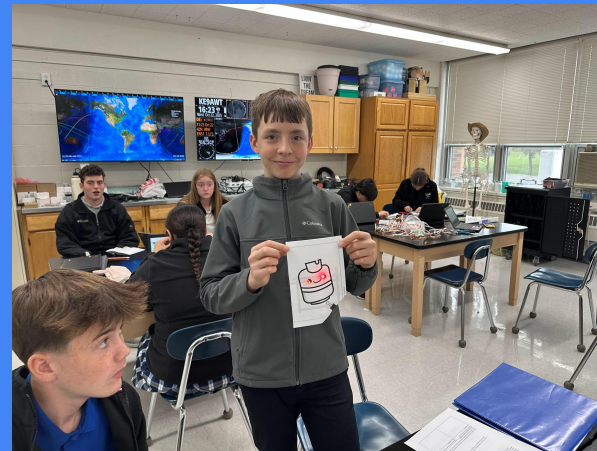


We wish you will have energy for Christmas! -Anna T

We Wish you will have enough energy for Christmas,
We Wish you will have enough energy for Christmas,
We Wish you will have enough energy for Christmas and enough energy for New Year.
Good Christmas lighting we bring to you and your house.
We Wish you will have enough energy for Christmas and enough energy for New Year.
Now, don't bring an unstable atomic nucleus,
Now, don't bring an unstable atomic nucleus,
Now, don't bring an unstable atomic nucleus, so we don't get radioactive!
Good Christmas lighting we bring to you and your house.
We Wish you will have enough energy for Christmas and enough energy for New Year.
For we all like heating,
For we all like heating,
For we all like heating, so hurry and pay the electricity bill!
Good Christmas lights we bring to you and your house.
We Wish you will have enough energy for Christmas and enough energy for New Year.
And we won't go until we're warm,
and we won't go until we're warm,
and we won't go until we're warm, so hurry up and pay!
Good Christmas we bring to you and your house.
We Wish you will have enough energy for and enough energy for New Year

Goal: To understand the difference between series and parallel circuits.

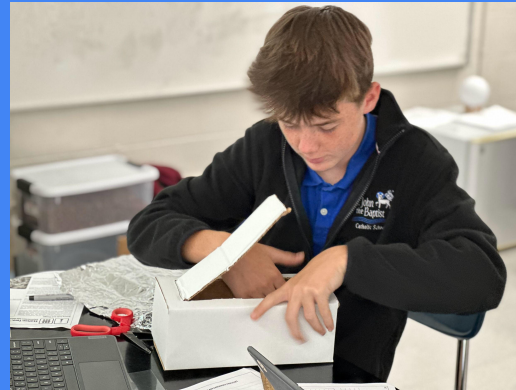
We created series and parallel sidekick circuits. We used multimeters to check the current and voltage, and then took our exploration further by using a PhET Simulation.



Goal: Construct the best solar oven by using our knowledge of thermal energy, r value, insulation, conduction, and radiant energy.



We made different types of designs and tested them out. We used temperature sensors to measure their temperature increase, and compared ours to a store bought model. The best part was making smores with them.



Goal: To see that radiant energy *is* energy

We utilized the Coherer effect to wirelessly power an LED. We used radio waves in one experiment and piezoelectricity in another. When we pressed the transmitter on the radio, or pressed the piezoelectric igniter, the LED would turn on.

