Short Line School Engineer Energy Kids

Get Electrified!

Advisor: Leslie Lively

The Engineer Energy Kids are getting back into the swing of things after being out of school for what seems like an eternity. This year was more normal than the past few but we still had some virtual days of learning throughout the school year.

We worked hard this year as we were all learning how to go about our normal everyday lives. We believe that we had a great year learning about energy and teaching others in our school and community. We were excited to share that knowledge about all the different kinds of energy and show off our new wind tunnel to the public and allow them to design and engineer their own turbine blades.

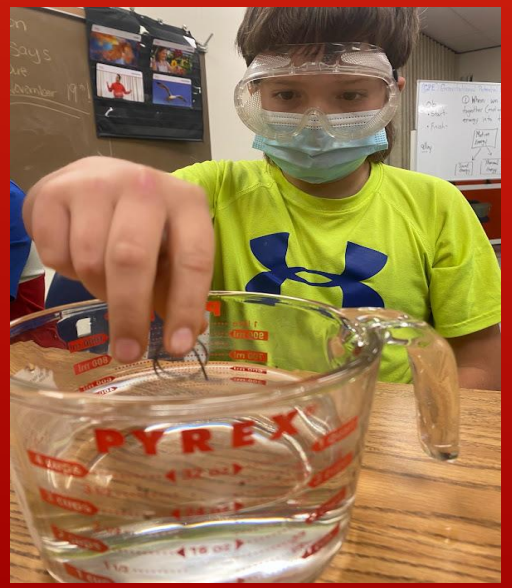
Goal: Learn about potential and kinetic energy, endothermic/exothermic, radiant energy, chemical energy, thermal energy, and electrical energy. We also learned how energy was passed along in the food chain.

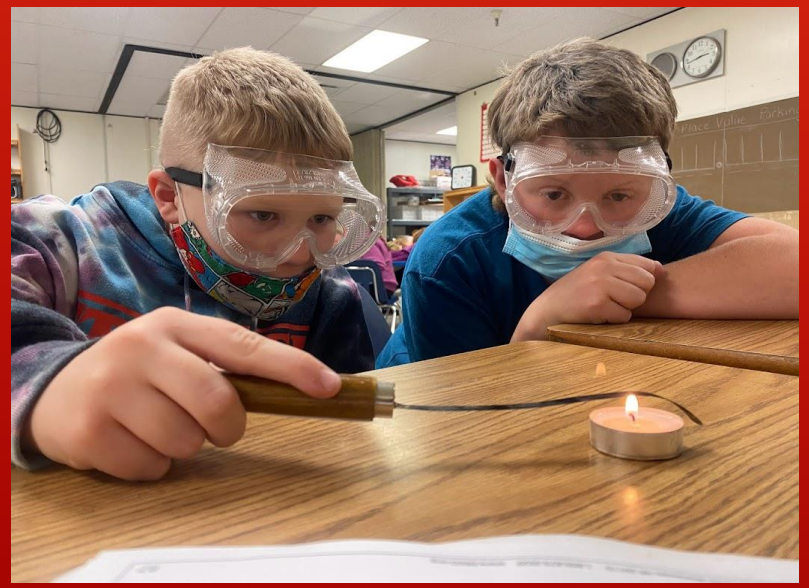
Activities: We learned about potential and kinetic energy in a variety of ways. We learned that we needed a control group and a variable. Once we learned about those we then proceeded to set up the experiment. We tested the trucks on different surfaces to find out which surface caused the most friction and made the truck stop sooner. We then wrote our conclusions in our science notebooks.
We learned that when the truck is sitting at the top of the ramp it has potential energy and when it is released it changes to kinetic energy.
By using the NEED Project Science of Energy kit we were able to understand the concept more clearly. As we worked our way through the six stations we slowly learned about the forms of energy. Of course hands on activities from the NEED Science of Energy kit the demonstrations made it easier to remember the different forms of energy.
We also designed and tested coasters on the JASON Learning site to explore potential and kinetic energy further. On the site we were able to make adjustments to our coaster in order to make it perform better. We even had the chance to talk with an engineer about friction when he designed jet airplanes.

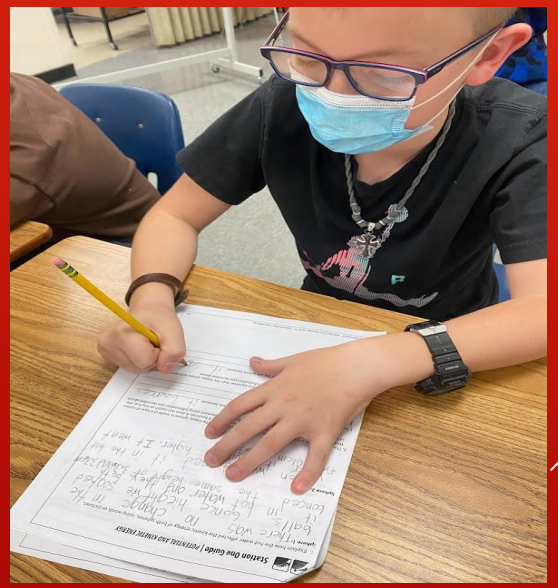
Resources: Science of Energy Kit from NEED, JASON Learning, FOSS kits, Hess Toy Truck and Dragster

Student Leadership: We led the discussion on how to make an experiment better. We also worked in teams to complete there data analysis to see which road surface would allow the truck to roll the furthest. We wanted to incorporate the scientific process into our labs and learn how things worked. We learned how to collect data and use it to make our experiments better.

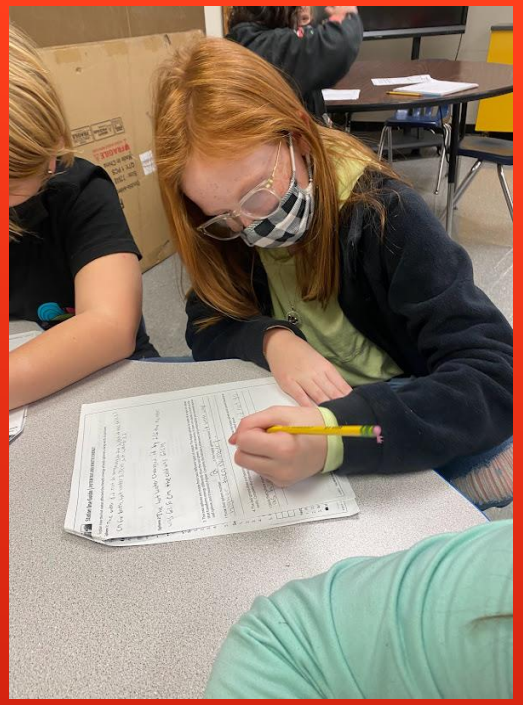
Evaluation: We had to write about what we learned from the NEED Project Science of Energy Kit.








Tri-Fold Display Board

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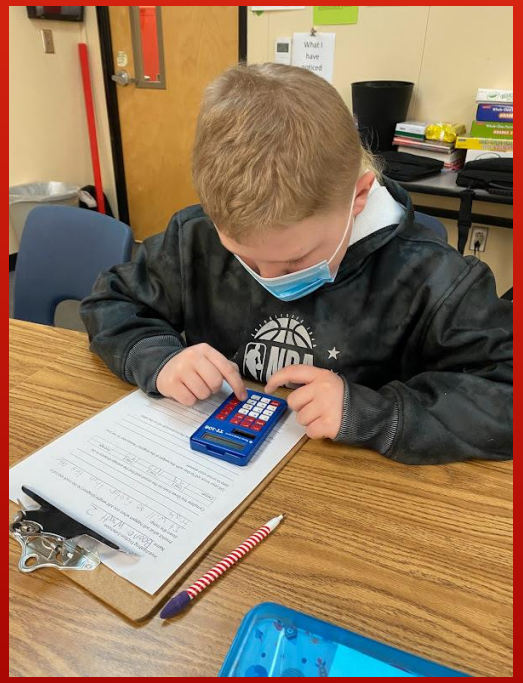



Goal: Learn about electricity, magnetism and force.

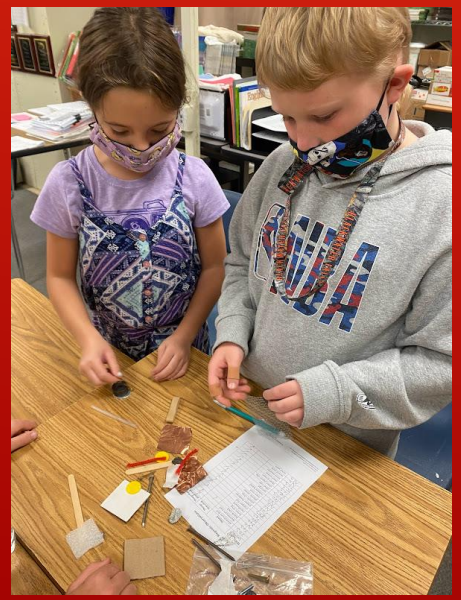
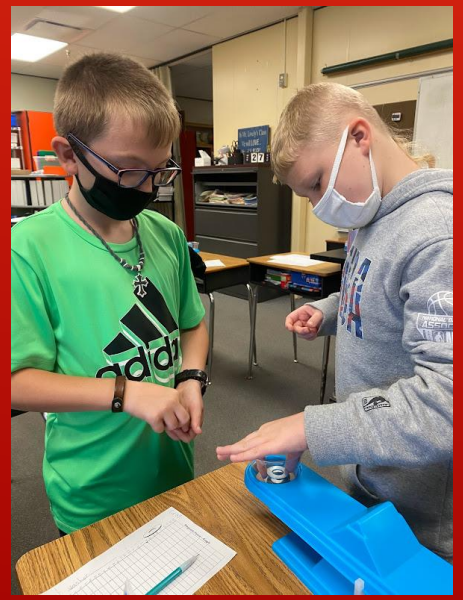
Activities: We first learned about energy, electricity, and magnetism from our NEED Elementary Info books. As we read through them and highlighted important information we learned that electricity has come a long way in its development. We then learned about series and parallel circuits. We always get time to discover on our own so we had to explore and learn how to light up the bulbs and make the motors run. Mr. Lively likes for us to find things on our own because it makes it more memorable for us. By using our motto: "In Learning You Will Teach, and in Teaching You Will Learn." he then allows us to work with other groups to find new ways to get the job done.

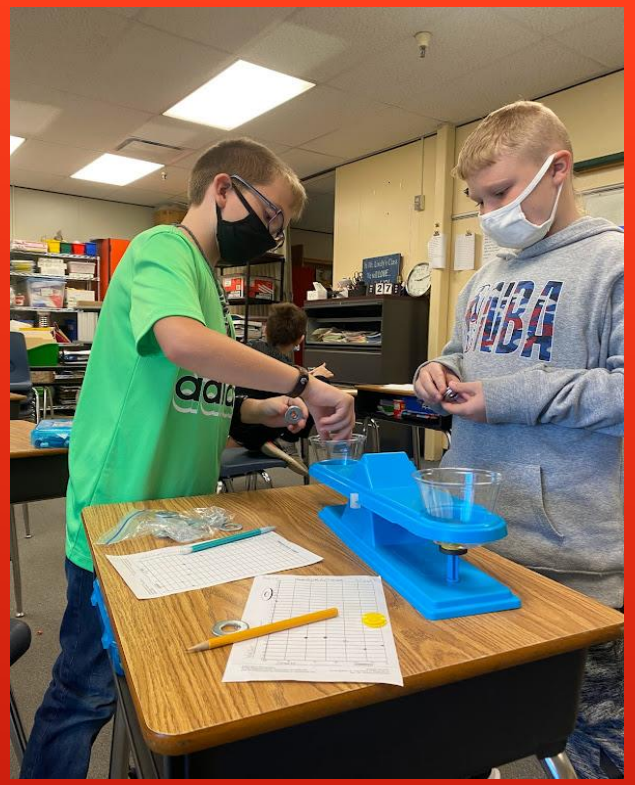
When learning about magnetism and force we did and experiment with magnets to see how much weight it would take to break the force of the magnets. We found that the further the magnets were spaced apart the less magnet force they had. We also learned that the Earth is a giant magnet! We got to make our own electromagnet and have a contest to see how much weight it could pick up.

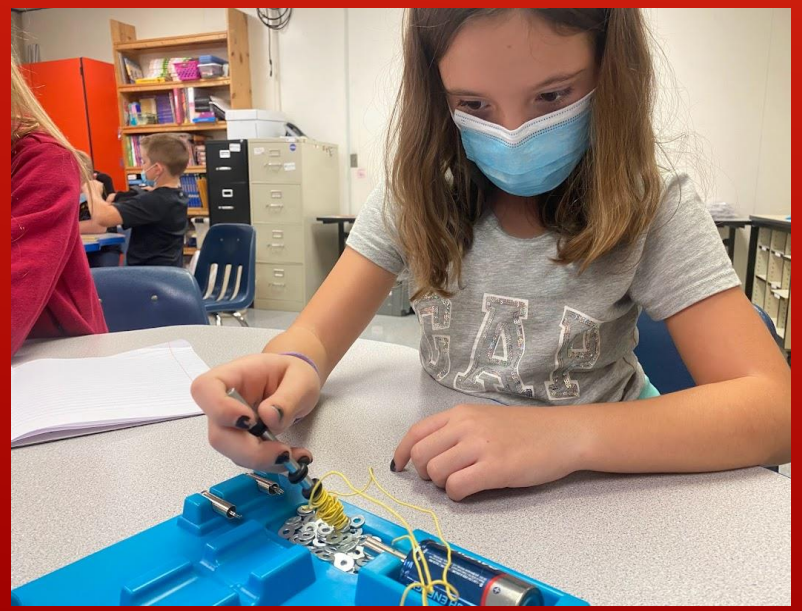
Resources: NEED Elementary Info Book, FOSS Kit, internet

Leadership: We explored on our own to find ways to light the bulb and then we were able to teach others. We worked with teammates to help each other build large parallel circuits around the room that met Mr. Lively's challenge standards that he wrote on the board each day. By working as a team we were able to get about 95% of the challenges completed.

Evaluation: We were given a pre and post test on general terms of electricity, magnetism and force. We also were given an hands on challenge that each person had to complete in front of Mr. Lively. That challenge consisted of making a series and parallel circuit as well as making an electromagnet that would pick up at least 30 washers. Mr. Lively would give us a short quiz after each of the stations take make sure we were able to understand the process.



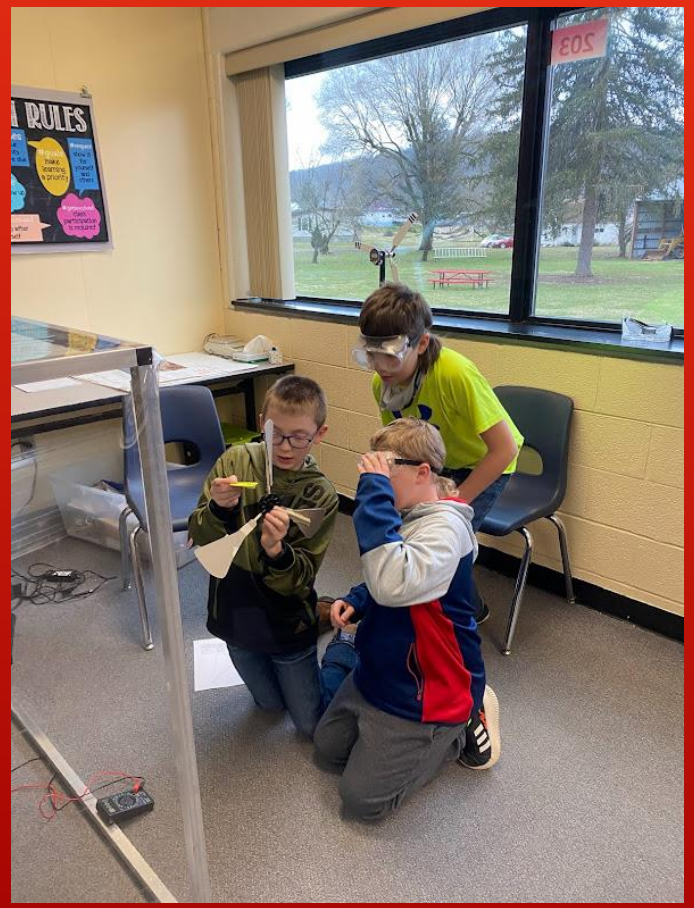


Goal: Learn about wind energy and teach others.

Activities: A few years ago we were able to purchase a wind tunnel to use in class through our community energy partners that are always there to support our class. That wind tunnel was used in class and at our community event that brought in 227 people! We were very pleased with the turn out. We learned all about wind turbines in class and designed our own blades and then tested them. We collected data so that we could work towards the best blades for the competition that Mr. Lively was going to hold. Once we had completed the in school learning we took the learning to our Family Fun night where we were able to show off our skill and let kids of all ages learn.
Resources: NEED Elementary Info Book, internet

Leadership: We were able to teach our community about wind energy

Evaluation: Our evaluation was how well we worked as teams to complete the task of engineering a turbine blade. Mr. Lively also evaluated us on our data collection and how well we worked with the public at our Family Fun Night.

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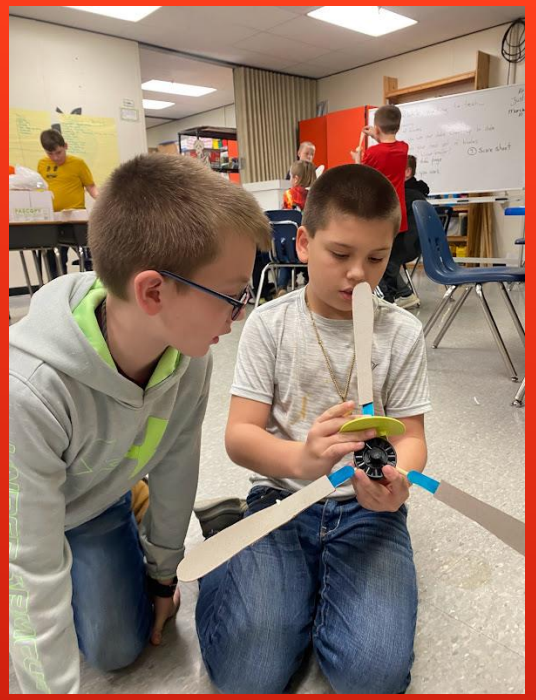

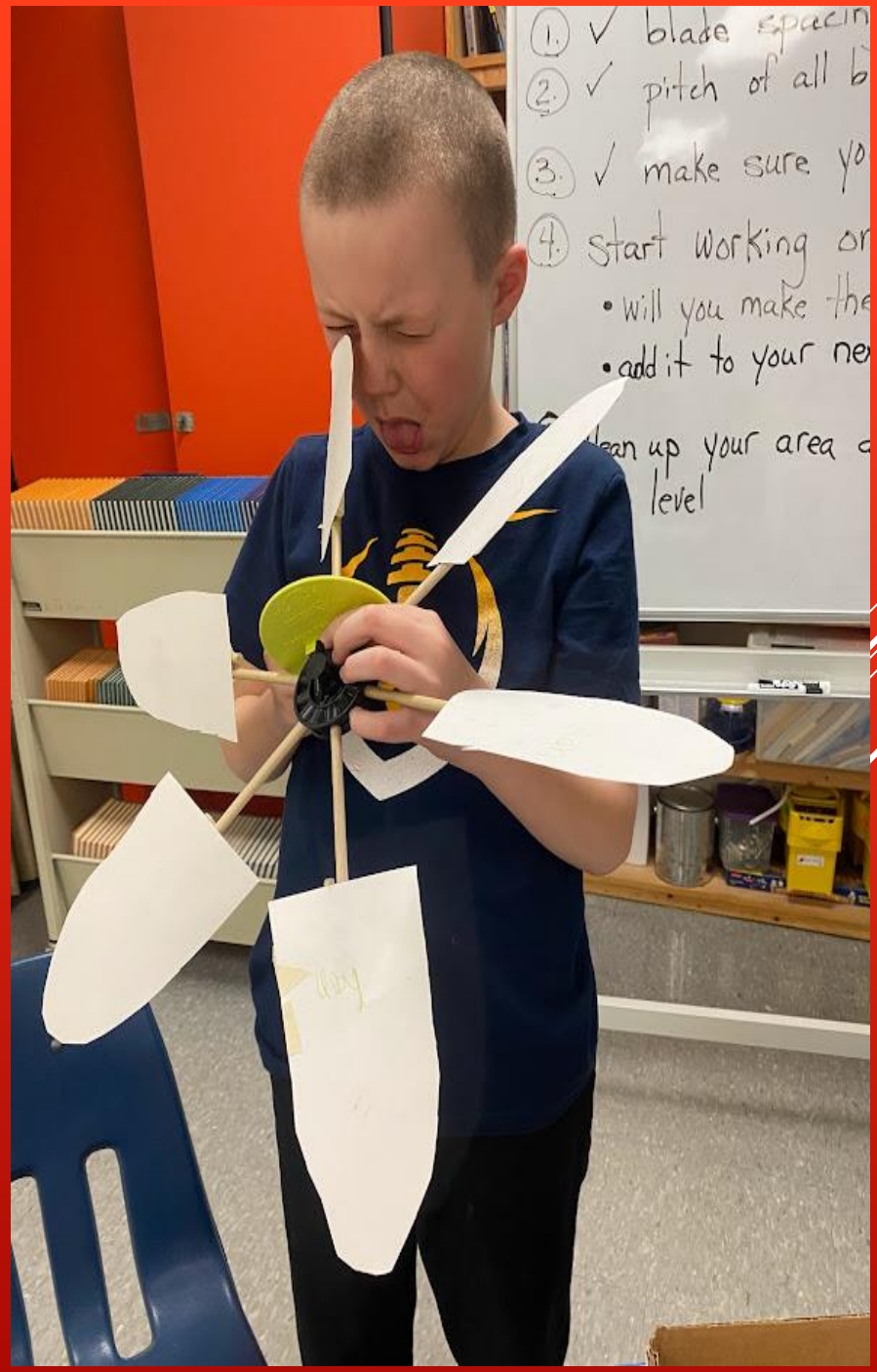
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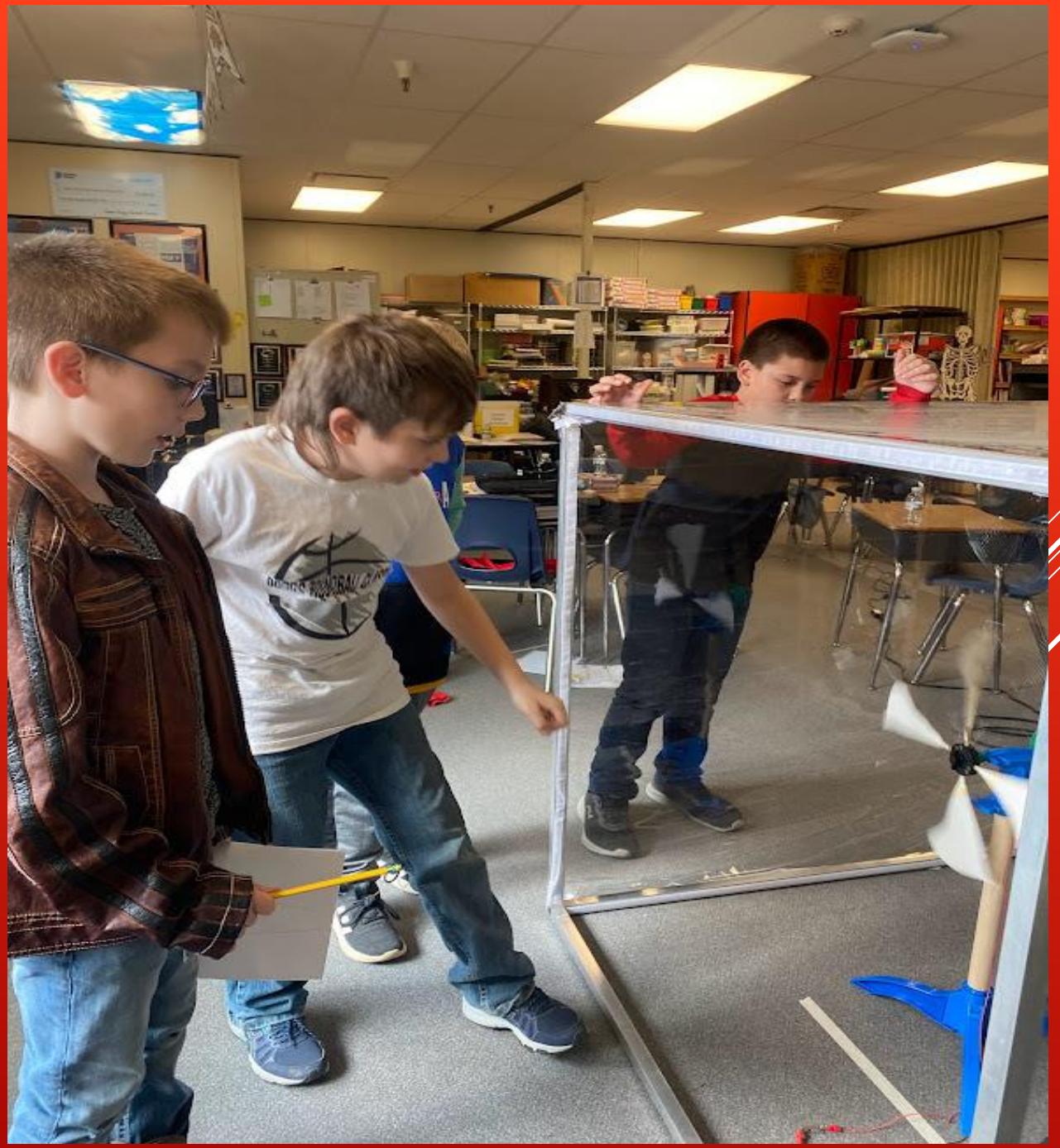

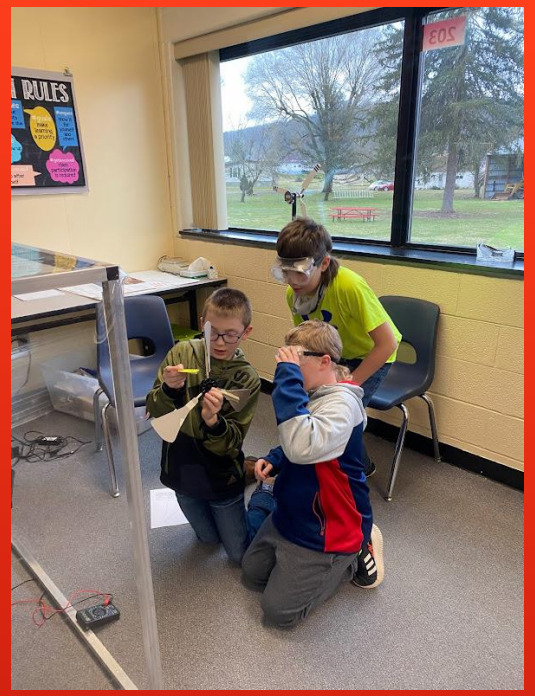
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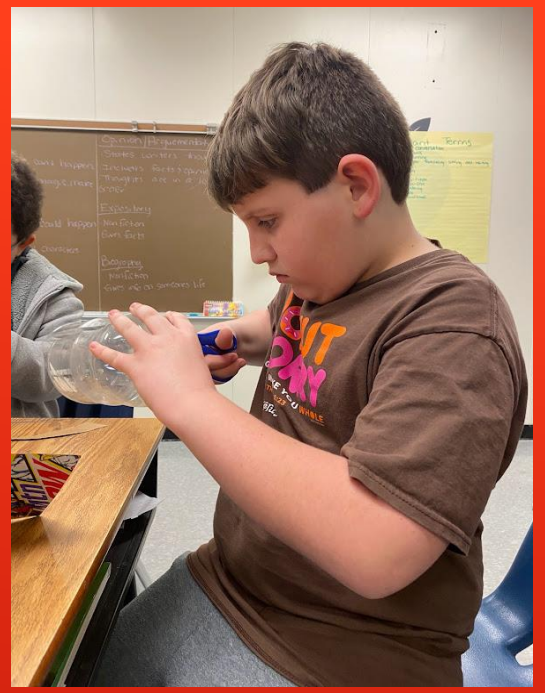
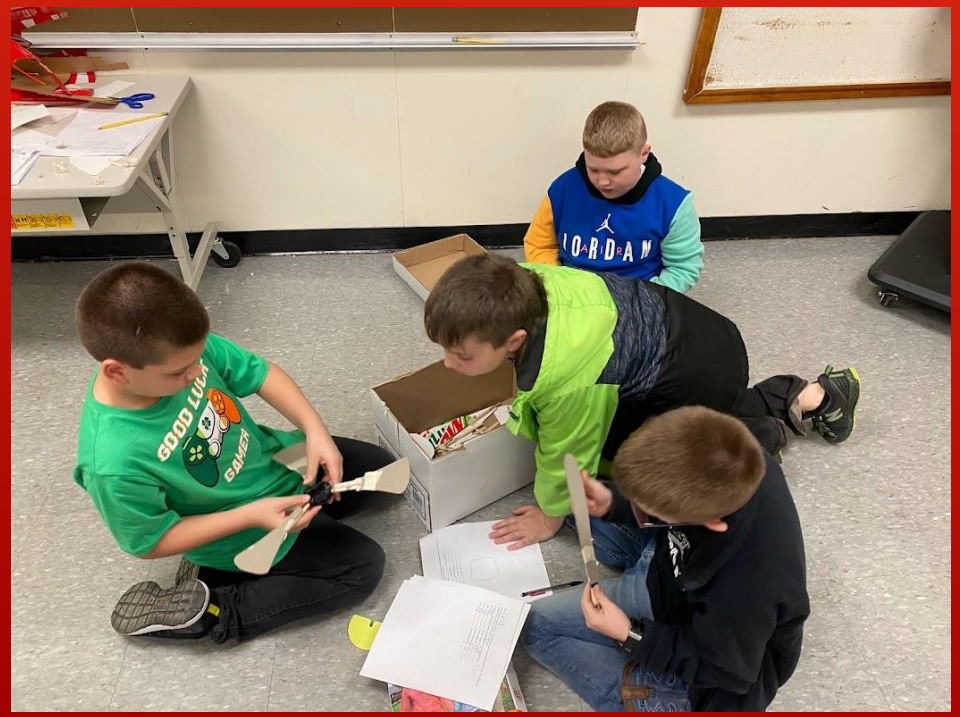



GREAT WHITE SHARK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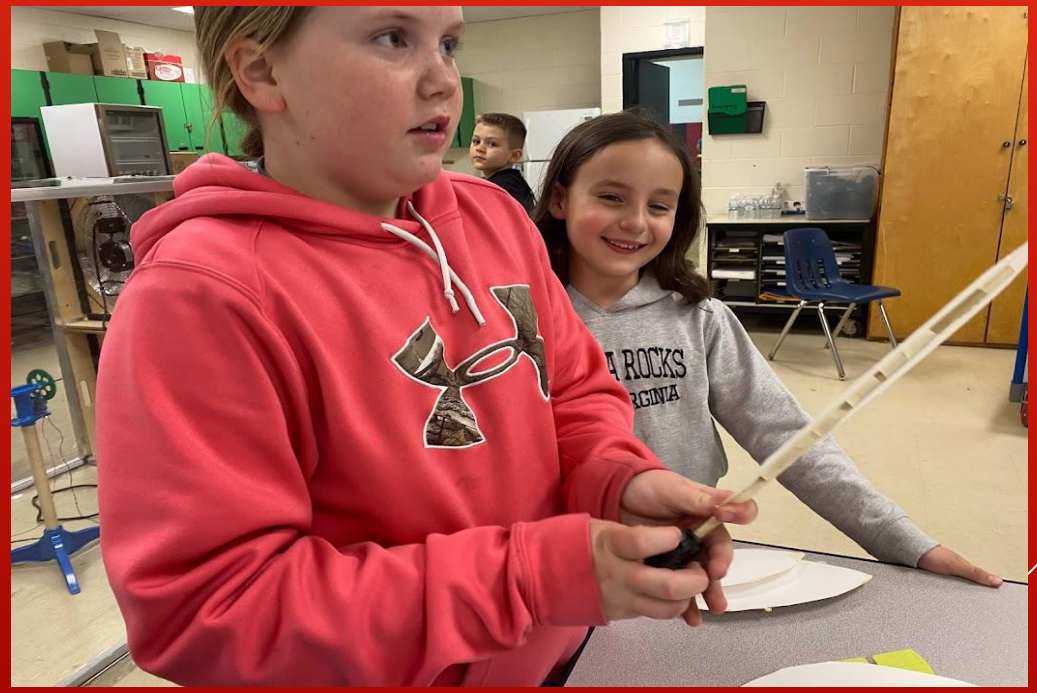


SMELL YOU
LATER!


SMELL YOU


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Goal: We wanted to continue with the NEED Project after our Youth Awards entry.

Activities: We have had so much fun this year. We have the following plans for the future. Our class is going to be facilitating our annual Black Out Day. We are going to once again ask classrooms to go dark for the day on Earth Day. We are asking them to turn off nonessential lights and devices for the day. We have large windows in our school that provide plenty of sunlight.

We are hosting our annual 5K run/walk at the local Ramp Food Festival. While there, we will have a booth about energy conservation. We will continue to write letters to leaders in the energy sector trying to get them to visit our school so that we can learn more about energy.

The 4th Grade class has been organizing the recycle program at our school this year. To date we have helped recycle over 13,000 pounds of paper, plastic and cardboard.

Resources: NEED materials, pamphlets, Energy contracts, Ramp Food Festival, Twitter @energy_kids, Wonders of Wind

Students Leadership: We will be hosting a 5K run/walk again this year. We will be there to help pass out water, give assistance, and run our booth. We will also be presenting our idea about the Black Out Day to our school staff prior to Earth Day.

Evaluation: We will always strive to be successful as we continue to work hard. If we are willing to share information about energy, then there are people who are willing to listen. Our proven success tells us that we can accomplish anything we put our minds to if we keep working to be our best!