

# Junior High of Michie Elementary School

## Conservation of Energy

Advisor Ms. Debra Steen

We have completed a lot of energy activities that are connected with our state standards. We used a lot of the NEED Energy activities and online resources to carry out these activities. We have learned about renewable and nonrenewable resources. After studying the impact of people on the earth we decided to raise awareness of the pollution of our oceans by plastics and other items. We also participated more with the Pepsico Recycling Program. Because of Covid restrictions we were not allowed to do a lot of our community programs and outreach activities. We were also restricted as to what we could do in our classrooms as for as group activities.



Jackson, Jeston, Molly Grace, Anna, Kate,  
Skyler, Matt, Caleb, Nean  
Group Leaders: Molly Grace, Jeston

## **Reenergizing Teamwork**

**Goal #1 Focus on deepening energy content knowledge**

**Activities and Tasks:** Obtain permission from principal and advisor, take the NEED Energy poll, Participate in energy activities,

**Energy Content and Resources:** NEED Energy poll, Teacher resources from Energy Camp, NEED Science of Energy, NEED online resources.

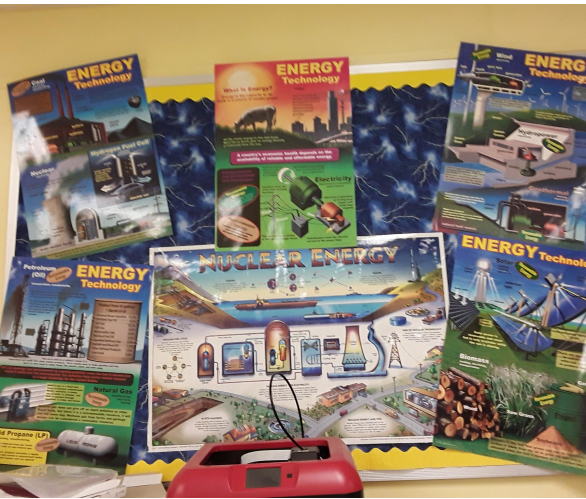
**Student Leadership:** 12 students took the energy poll and 32 students were involved in most activities

**Evaluation:** First Energy Poll scores were an average of 80% and second Energy Poll scores were an average of 97%.  
Number reached 6000.

## **Renewable and Nonrenewable Resources**



Non renewable energy sources.  
Like a flash. Here today and gone tomorrow.



R N  
E O  
N N  
E R  
W E  
A N  
B E  
L W  
E A  
and B  
L  
E

## Chinese Spouting Bowl.

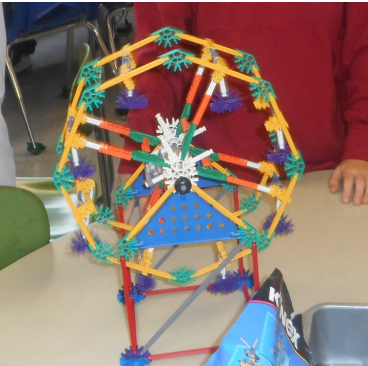
Who can get the water to rise.  
You place water in the bowl.  
Rubbing the handles on the  
bowl with your wet fingers you  
make a sound that produces  
sound waves and causes the  
water to rise up in the bowl.  
The better you are the higher  
the water.

## Sound Energy



Eva's water went the highest.

## Mechanical Energy



## Electromagnetic using Chemical Energy



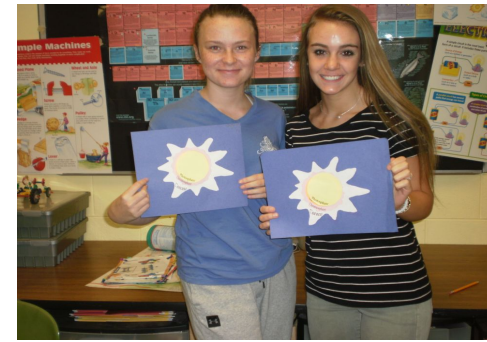


# Chemical Energy A Renewable Resource



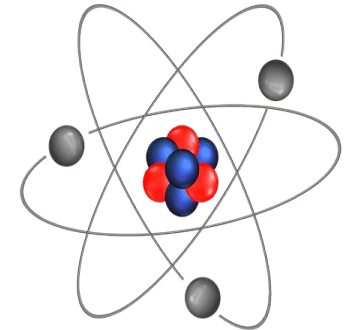
**Plant and animal cells use the sun to carry out photosynthesis which is a chemical reaction. We also learned about the process of Cellular Respiration**

N  
F  
U  
C  
L  
E  
O  
N  
R



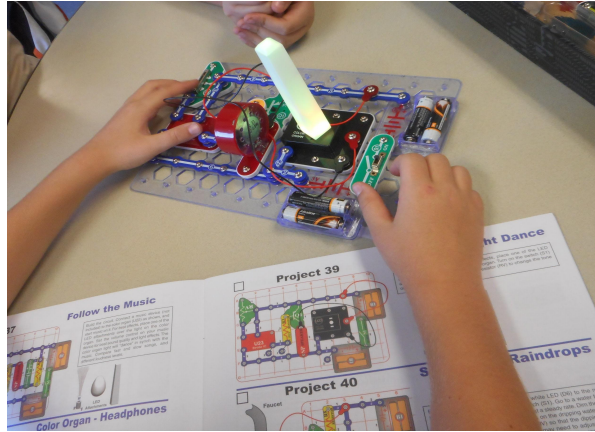
**We made a model of the sun demonstrating the layers and their makeup.**

**Chemical Energy  
Where does the flame burn  
hottest**





# Electricity and Circuits



Electricity is produced from different sources. It can be produced using hydropower, natural gas producing steam, nuclear energy, wind, and solar power. Most of these resources are renewable.

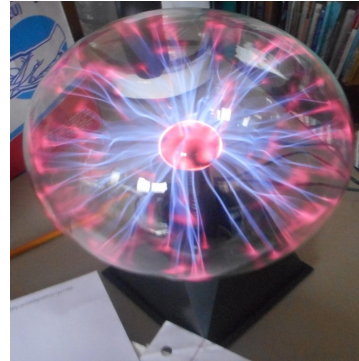
Which light bulb is more energy efficient. Comparing incandescent, CFL, and LED light bulbs. Which is more efficient? We concluded the LED puts off less heat and is the more efficient. In our school we have replaced the old fluorescent lights with the new LED lights making our school more energy efficient. They also have installed automatic light switches where possible.



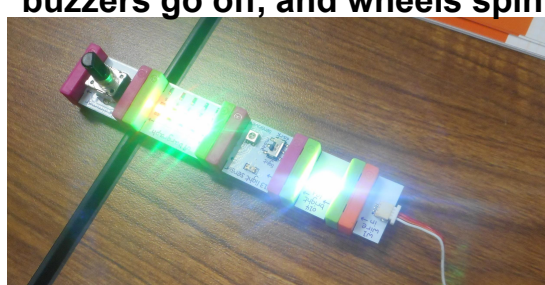
Filled with noble gases with a high energy electrode in the center. The light rays go from hand to hand and we even accidentally set off static electricity to fellow students.



Plasma Ball



Using chemical energy from a battery, then connecting the circuits to make the light come on buzzers go off, and wheels spin.



# Solar Energy A Renewable Resource



**Making our solar powered cars.**

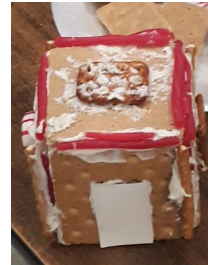


**Building our solar gingerbread houses. A NEED Activity**



**Building our solar powered house. It has water, lights and fans.**

**Pretzel Solar Panels**





# Energy Conservation

**Goal#2:** To promote energy conservation, reducing the carbon footprint by reducing the use of fossil fuels. Emphasis on Wind Generators.

**Activities and Tasks:** Obtain permission of principal and sponsor. Assemble Wind Generator, make patterns and models.

**Energy Content and Resources:** Materials about energy conservation reducing the use of fossil fuels, internet NEED Resources, NEED materials online, and teacher resources gained from energy camps.

**Student Leadership:** 4 students talked to principal and advisor. 32 students did the research, completed the activity and summarized the results.

**Evaluation:** We completed our activity and made new designs for the windmill blades. Total reached 100 students.

## Wind Generators

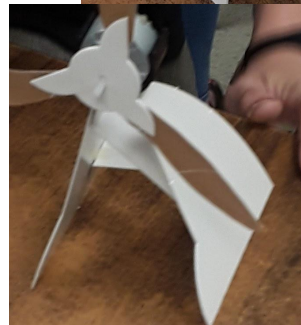
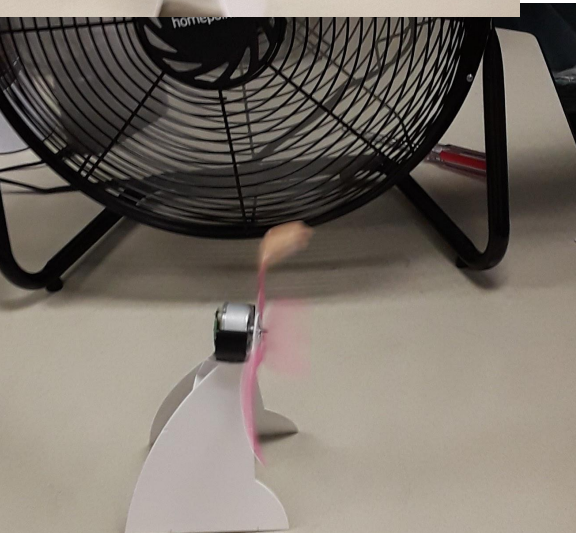
Our wind generator arrived. We assembled the fan and the wind generator. We worked with the tilt of the fan and placement of the generator. We generated enough power to make the wheel spin the beeper beep and the light to come on.







We were studying about renewable energy when the snow storm hit. We were talking about the energy loss in Texas that started with the wind generators going off grid and the domino effect that happened after that. We asked ourselves the question, "Could the blades be redesigned in some way to keep ice from building up on the blades. We know that heat can be applied to the blades to keep them from freezing up. Could there be a material that they could be made from to stop the icing. Could they be designed in a different way to keep ice from accumulating. We decided to try and design some blades. We first looked at the design that came with our kit. Then we redesigned some of the blades. They did work as far as the spinning was concerned. We are now working on making our designs with the 3-D printer. It is taking time to make them. Then we are going to install them on the generator and see if we can replicate the ice sticking to the blades and see if they freeze Up. This is us making the models and our redesign trial.



**Goal#3: To promote the recycling and reuse of items and products of recycled items.**

**Activities and Tasks: Obtain permission from principal and advisor. Promote 4ocean activities and products, and participate in Pepsico Recycling Activities.**

**Energy Content and Resources: NEEDS activities and resources. Pepsico resources. Student Leadership: 2 students talked to principal and advisor. 45 students posted about 4ocean. Total number reached 1500**

**Evaluation: Pepsico Recycled Activities Results**

**Our class recycling bin. We have a few of these in our building.**



# Water Conservation and Water Pollution

**We have been studying the impact of humans on the earth and one of the things we studied was the pollution of water. As part of the exercise we participated in an oil spill cleanup. We found that even if you were able to clean up most of the oil there was always and oil residue left behind. We looked at videos of the Exxon Valdez oil spill and the BP Horizon oil spill. After 25+ years there are still tar balls washing ashore and oil residue found under the rocks on shore. In the BP oil spill there are still tar balls washing ashore. So even after spending billions of dollars on clean up it is still affecting the environment today.**

**We also looked at the great lakes in 1969 where they had a fire on the lake because of pollution in the lake. Working with Canada the United States cleaned up the lake. Since that time several agencies and policies have been implemented to help control pollution.**

**We had a list of supplies that we could buy to clean up our oil spill. We had to count the cost and look at the effectiveness of our efforts. We had to collect the data and diagram the results.**





# Water Pollution

After studying about water pollution, we decided to do a project to promote awareness of water pollution. We discussed things that contribute to water pollution, even in our local waterways and how we can help solve this problem. We looked into 4ocean and their project to clean up the ocean. This year because of the pandemic one of the things they are pulling from the ocean are face mask. They work all over the world to pull tons of trash from the ocean. For each item purchased from there website a pound of plastic is removed from the ocean. Because of restrictions we could not sell products again this year but sent home flyers and by word of mouth to go to their website to see what they have to offer. Our sponsor did check out this group and found that they are reputable and sponsored by some of the programs we have participated with in the past. We do not have the numbers for how many things were purchased but we hoped we contributed to the cause in some small way and helped pull plastic and trash out of the ocean. If you would like to purchase a product to help go to [www.4ocean.com](http://www.4ocean.com).



We're here to clean the ocean and coastlines while working to stop the inflow of plastic by changing consumption habits



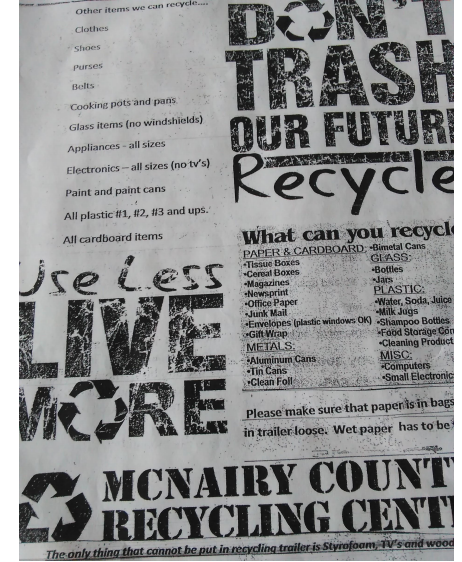
Michie Participated in the Pepsico Recycling Program in place of some of the other activities because of restrictions on community events.

## Pepsico Recycling Challenge

Your Quick Summary from April 16, 2020-April 15, 2021

Total weight of all eligible and other materials recycled: 5,796 lbs.

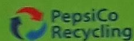
Total estimated # of eligible beverage containers recycled: 24049 containers.



Our letter home and our recycling trailer.



OUR IMPACT



## MICHIE ELEMENTARY SCHOOL IS MAKING AN IMPACT

### SUMMARY

Within the time period selected, your school has recycled...

Weight



Weight equivalent to that of a rhinoceros.

Energy Saved



Enough energy to power a retail store for an entire year.

Greenhouse Gas  
Emissions Avoided



An amount of greenhouse gases (GHG) that otherwise could have been offset by trees within 10 acres of U.S. forestland over the course of a full year.

Trees Saved



Enough paper to avoid converting 10 oak trees into paper.

LEARN MORE ABOUT RECYCLE RALLY AND SIGN UP TO PARTICIPATE AT: [PepsiCoRecycling.com/RecycleRally](https://www.PepsiCoRecycling.com/RecycleRally)



# Pepsico Recycling Project.

We were challenged to design and make a bulletin board that taught about recycling and energy conservation. This also met our goal number 2 about energy conservation but it was part of a pepsi challenge.



Our Jr. High Club has had a good year and are looking to next year and thinking about our goals. We learned a lot about energy this year. We learned about renewable and nonrenewable energy. We completed projects that had emphasis on our use of natural resources, recycling and energy conservation. We explored electricity, solar power, wind energy, sound energy to name a few. We completed several NEED activities in our classroom. We studied the human impact on earth with the study of water, air, and land pollution. We participated in several NEED activities such as the solar gingerbread houses and the Pepsico Bulletin Board challenge.

**Resources:**

NEED Elementary Poll

NEED Energy Works

NEED Energy Books and online resources

State of TN Energy Camp NEED Activities

Pepsico Resources

