

Inspiring Energy Conservation

Anchorage School | Advised by Mrs. Raechel Minor

Summary: Starting at the beginning of the school year, Anchorage's Middle School Stem Club planned many events to help conserve energy in the school. First, we planned "Blackout Day" to create awareness for energy usage and conservation. We then held a school wide energy conservation competition to make students passionate about saving energy. At the end of the year, we held an energy fair and gave out handouts to raise awareness outside of the school in the community. The club received a grant from our parent teacher association in the amount of \$300 to support the effort of these projects.

Our Projects:

(Please follow links from this slide and the coordinating slides to view our project.)

Energy Blackout Day

Middle School STEM Club Hosted Energy Blackout Day on December 9th

The Middle School STEM club hosted an Energy Blackout Day on Friday, December 9th. Our school is in competition with Eminence Independent School District to see which district can decrease energy use per square foot the most during the school year.

The Middle School STEM Club students planned an Energy Blackout day that included the following components:

- Teachers and students were asked to use the least amount of electricity possible throughout the school day.
- Cafeteria staff volunteered to serve an oven free lunch.

- Middle School STEM club students led energy conservation lessons they had designed for each grade level.

In September, 2016, for the first time, Anchorage School received Energy Star recognition from the U.S. Environmental Protection Agency (EPA). The EPA awards Energy Star status to school buildings that use 35 percent less energy and generate 35 percent fewer greenhouse gas emissions than similar buildings across the nation. Recently our school district also received an \$8,000 grant from LG&E which is being used to install programmable thermostats

designed to generate further reductions in energy consumption.

Middle School STEM Club sponsor Raechel Minor and students are planning additional energy conversation activities for the remainder of the school year which include classroom & office audits as well as school community awareness & education activities. Be on the lookout for a Middle School STEM Club information table at upcoming events and be sure to engage in conversation with students about their initiatives and about ways that you can conserve energy in your home.

Blackout Day



National Energy Education Development Project

Energy Awareness Handouts

(Handed out at Fair/Blackout day)



Energy Fair



ENERGY STAR

Energy Star Classroom
Competition

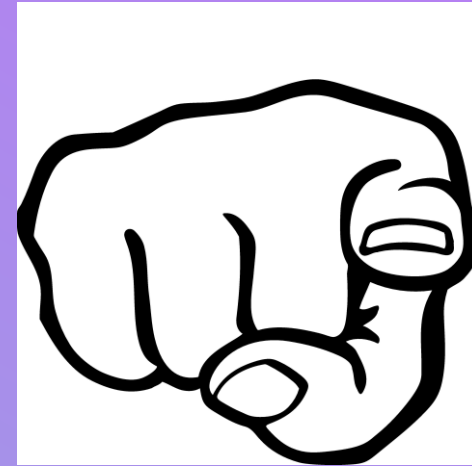
Measure of Success

Energy Awareness Handouts

In order to accomplish our goal, we...

- Handed out the handouts at all of our energy awareness events.
- Created the energy handouts using information from the NEED website.
- Encouraged the community to make conservative choices at home.

- **Conserving Energy is an Advantage to YOU!!!**



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Blackout Day

Goal:

-Increase awareness of school-wide energy usage

What is Blackout Day?

“Blackout Day” was a school wide event held on December 9th, 2016. Classrooms used a minimal amount of lighting, energy free lessons were conducted, and the school lunches for the day were made without electricity. Every class was given a grade appropriate lesson on energy usage planned and presented by students from the STEM club based off of the NEED curriculum.



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Blackout Day Grade Appropriate Lessons

Kindergarten/1st Grade -
Reduce, reuse, recycle
(importance of conservation)

2nd Grade -
What is Energy and How do we use it?

3rd Grade -
Electricity and electrical safety

4th Grade - Electricity- How It's Used (learning about conserving energy daily.

5th Grade - Safety + Conservation/Electrons

6th/7th Grade - How Energy is Related (Natural phenomena vs. man-made uses)

8th Grade -
Effects of Northeastern Blackout and how Energy use has been modified since.

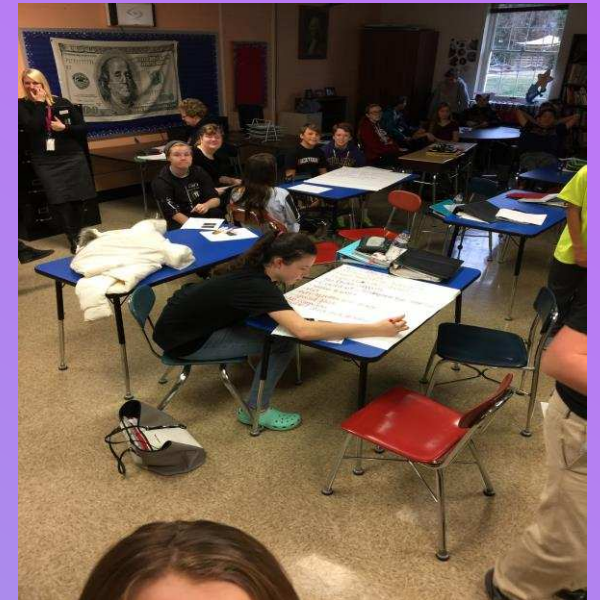
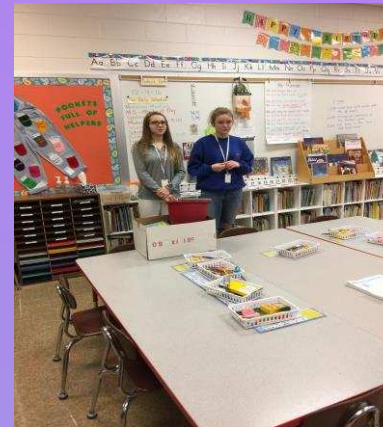
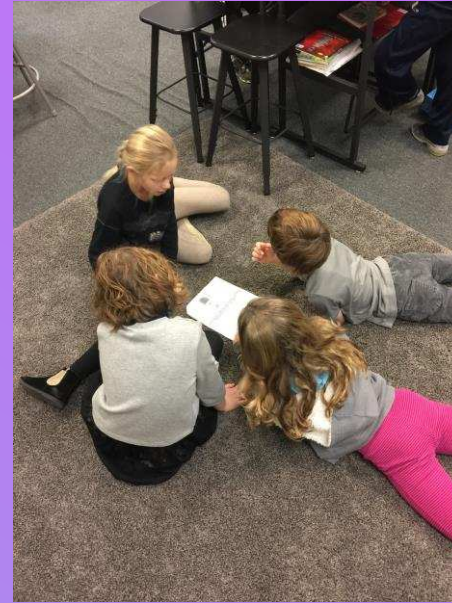
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Blackout Day

In order to accomplish our goal...

- We stayed after school every Tuesday
- Students planned and taught lessons to different grade levels as we:



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Energy Star Classroom Competition

Goals:

Encourage classrooms to limit energy use from day to day

What is the Energy Star Classroom Competition?

The Energy Star Classroom Competition was a competition held between homerooms in order to spur a desire for further energy conservation.



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Energy Star Classroom Competition

In order to accomplish our goal, we...

- Created a rubric for audits
- Stayed after school to audit classrooms
- Used any extra class time to take audits
- Encouraged classes to participate through weekly announcements
- Bi-monthly class winners were announced and an award was placed outside of their room.

Teacher: _____ Auditor: _____
Date: _____ Rm. #: _____ In school ___/Out of school ___

During School:

2pts. __ Lights out
1pt. __ ½ lights out
0 pts. __ lights all on

1 pt. __ Computers off
that are not in use.
1 pt. __ Smartboards off
1pt. __ Other electronics
are off.(lamps, etc.)

1pt. __ Sinks turned off

2 pts. __ All restroom sinks
off. (points will be
deducted from nearby teachers.)

Total: _____

Out of School:

(Is the teacher in the room? __)

2pts. __ Lights out
1pt. __ ½ lights out
0 pts. __ lights all on

1 pt. __ Computers off
that are not in use.
1pt. __ Smartboards off
1pt. __ Other electronics
are off.(lamps, etc.)

1pt. __ Sinks turned off

2 pts. __All restroom sinks
are turned off. (Points will be
deducted from nearby teachers.)

1 pt. __ Windows closed

1pt. __ Fish tank lights

Off

Total: _____

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Energy Star Classroom Competition: How It Worked

- Random energy audits were taken over the course of six weeks and classrooms who were working to save energy were awarded points based off of the audit.
- Every two weeks the homeroom with the most points received prizes (such as Panera Bagels).
- At the end of the six weeks, every student in the classroom with the most points overall received:
 - a \$5 gift card to Graeter's Ice Cream
 - an energy awareness kit which included
 - >a 60 watt LED light bulb
 - Sunglasses
 - a household energy conservation chart



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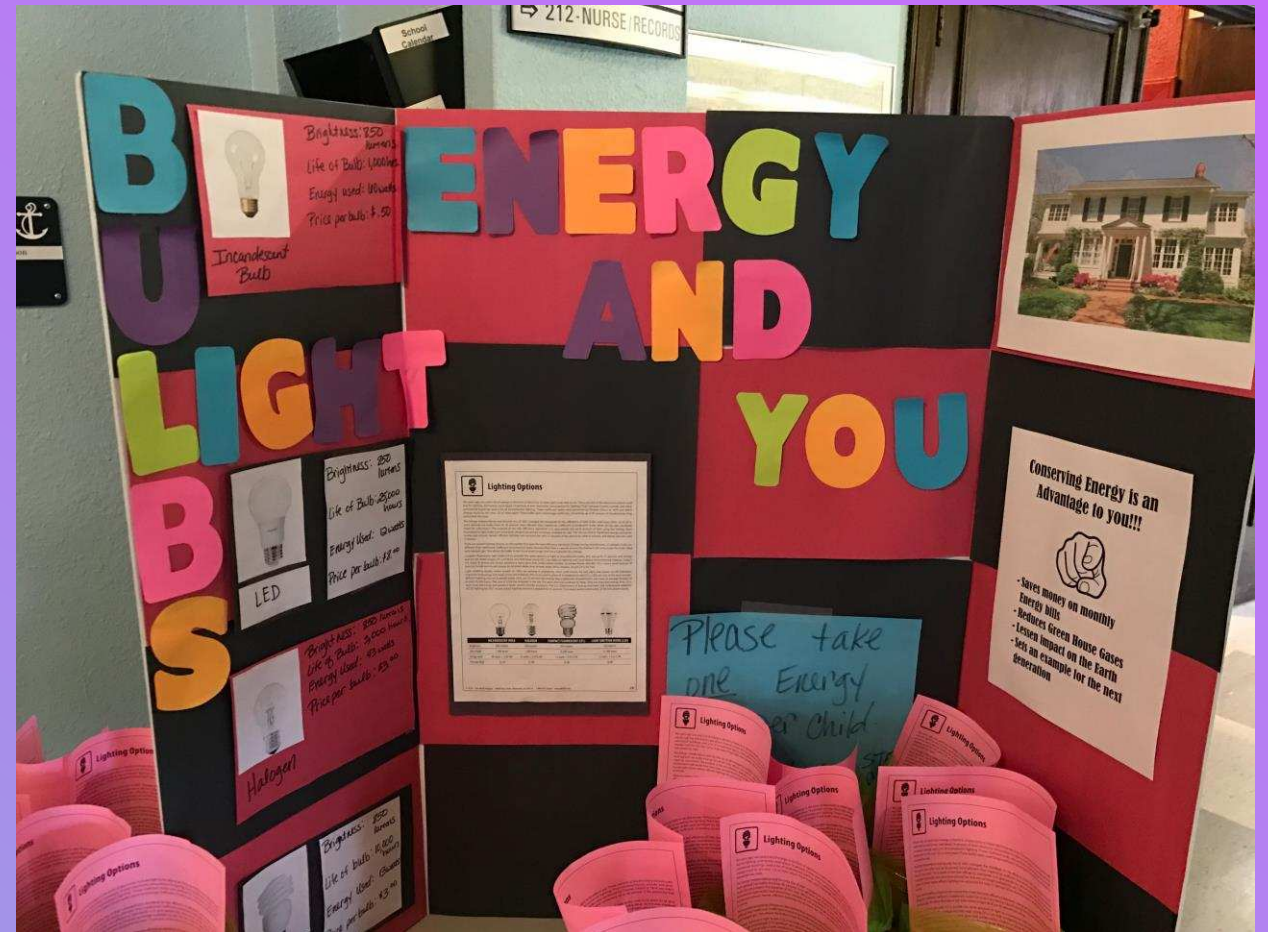
Energy Fair

Goal:

- Encourage energy conservation in the community

What was the Energy Fair?

The Energy Fair was a community event held to create interest in energy conservation.



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Energy Fair Activities

- Small group discussions
- Children of the community created wind turbines based off of the NEED curriculum “Wind Can Do Work” (this activity was led and planned by members of the STEM Club)



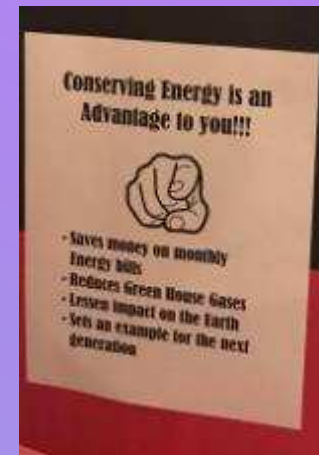
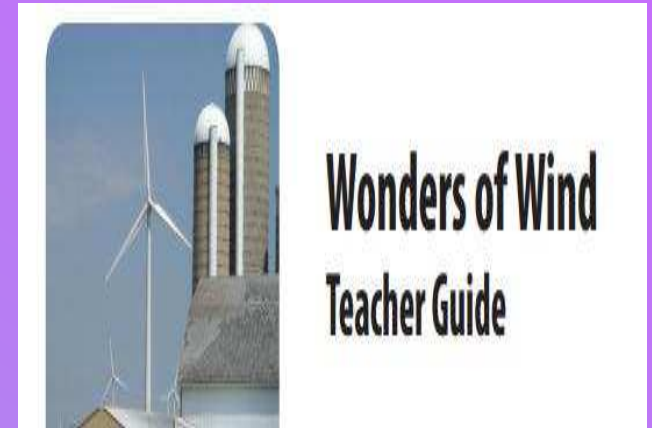
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Energy Fair

In order to accomplish our goals, we...

- Selected a NEED curriculum based activity
- Spent time after school working on a tri-fold board and planning the activity
- Spent time after school during the Energy Fair



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Energy Awareness Handouts

Goal:


- To inform the community about energy usage

What were the energy awareness handouts?

The energy awareness handouts were papers given out to students on Blackout Day and at the Energy Fair. An example is shown on the right of this slide.

Facts of Light Answer Key

All bulbs provide about 850 lumens of light.



	INCANDESCENT BULB	HALOGEN	COMPACT FLUORESCENT (CFL)	LIGHT EMITTING DIODE (LED)
COST OF BULB				
Life of bulb (how long it will light)	1,000 hours	3,000 hours	10,000 hours	25,000 hours
Number of bulbs to get 25,000 hours	25 bulbs	8.3 bulbs	2.5 bulbs	1 bulb
x Price per bulb	\$0.50	\$3.00	\$3.00	\$8.00
= Cost of bulbs for 25,000 hours of light	\$12.50	\$24.90	\$7.50	\$8.00
COST OF ELECTRICITY				
Total Hours	25,000 hours	25,000 hours	25,000 hours	25,000 hours
x Wattage	60 watts = 0.060 kW	43 watts = 0.043 kW	13 watts = 0.013 kW	12 watts = 0.012 kW
= Total kWh consumption	1,500 kWh	1,075 kWh	325 kWh	300 kWh
x Price of electricity per kWh	\$0.125	\$0.125	\$0.125	\$0.125
= Cost of Electricity	\$187.50	\$134.38	\$40.63	\$37.50
LIFE CYCLE COST				
Cost of bulbs	\$12.50	\$24.90	\$7.50	\$8.00
+ Cost of electricity	\$187.50	\$134.38	\$40.63	\$37.50
= Life cycle cost	\$200.00	\$159.28	\$48.13	\$45.50
ENVIRONMENTAL IMPACT				
Total kWh consumption	1,500 kWh	1,075 kWh	325 kWh	300 kWh
x Pounds (lbs) of carbon dioxide per kWh	1.23 lb/kWh	1.23 lb/kWh	1.23 lb/kWh	1.23 lb/kWh
= Pounds of carbon dioxide produced	1,845.0 lbs carbon dioxide	1,322.3 lbs carbon dioxide	399.8 lbs carbon dioxide	369.0 lbs carbon dioxide

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Measure of Success

- In August of 2016 Anchorage School was ranked 160 out of 173 schools in terms of energy efficiency.
- By December 2016 the school was named an Energy Star School.
- Awaiting new data to show current district ranking among the state.



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