



Lloyd Memorial High School

Energy Conservation Project 2017-18

Can I Get A Watt Watt? – Year4

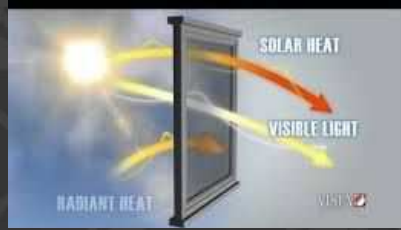
Melissa Stolz



In our fourth year, we were driven to continue to educate our students and staff along with our community about energy conservation by inventorying our energy use in the building, hosting and presenting fun outreach activities for students and the community, and publishing our findings for stakeholders. In addition, we continued working in our community garden and designed a nature trail for our district. We partnered with the middle school energy club for an Adopt-a-Block Outreach and an event for their Boys & Girls Club. We also mentored our elementary school energy clubs through an Earth Day Social Event for students and families and conducted a Science of Energy Tour for 4th graders. We continued our district-wide initiative to collect plastic to build “Buddy Benches” for each of our schools. We also planned and hosted a screening of the film “The Lorax” for our community in an engaging evening event. In our building, we partnered with our STLP students to create sensors for air quality monitoring and are implementing an Idling Cessation Incentive program for district families. We also installed a water-bottle filler station to promote conservation

Our 5 Goals

1. Reduce the amount of energy used at Lloyd.
2. Partner with middle school students and our high school technology group (STLP) to educate others about conserving energy.
3. Reduce energy waste when producing raw materials by promoting recycling.
4. Increase energy awareness and conservation practices in our own community.
5. Provide energy conservation mentoring to elementary schools.



Goal 1 – Reduce the amount of energy used at Lloyd

Activity: We inventoried four classrooms in which energy loss has been reported as being significant. We interviewed teachers, took pictures, researched, and created potential solutions based on cost-benefit analysis. These were presented to our district energy manager and our administrator.

Energy Content & Resources: District Energy Manager visited and shared information, NEED Energy Info books, Duke Energy kit ideas for potential solutions



[Click here for our Energy Loss Survey](#)

Student Leadership: Students were divided into groups to inventory, interview, and research solutions for individual teacher classrooms.

Evaluation:

We identified a significant amount of thermal energy loss through windows in classrooms. Teachers felt this loss of energy was a significant problem. [Click here for our Energy Loss Recommendations Presentation](#) Staff and students report positive feedback regarding upcoming changes as a result of our recommendations.

Goal 1 - Reduce the amount of energy used at Lloyd



Activities: Energy Superstars Patrol Contest was promoted, and monitored.

- Energy Superstars Breakfast was hosted for faculty who have demonstrated shut-down practices regularly.
- We created a checklist for staff members for the entire district to direct them into how to properly shutdown their classrooms for long breaks in order to conserve energy and distributed them just before long breaks.
- We created announcements for students and staff to provide them with Energy Saving tips at the beginning of the day.

Energy Content and Resources: We got our chart from Saving Energy at home and school teacher guide and online energy inventories

Student Leadership: Completed monthly after school patrols to provide feedback and track compliance in all rooms. Read announcements, cooked and served breakfast for the Superstar teachers

Evaluation: We will continue monitoring light usage around the building. Teachers are shutting their classrooms down completely at 95% compliance now! We will survey teachers at the end of the year, last year's similar efforts indicated increased awareness and positive feedback. Even though more of our building is being used for the open preschool area now, our conservation efforts have allowed us to use the same amount of energy for a much larger space!

Classroom Checklist BEFORE Leaving for Break!

Brought to you by the LMHS Energy Club



- ✓ Unplug all small appliances – microwaves, mini-fridges, coffee makers, etc. Please take these home over the break, per Dr. Burkhardt's emailed instructions! Don't forget to unplug your electric pencil sharpeners & Glade plug-ins as well.
- ✓ Unplug ALL computers, monitors, and projectors, as well as tvs – just turning them off still leaves a phantom plug-load.
- ✓ Make sure all windows are closed and locked and alert Ms. Stolz if there are significant drafts.
- ✓ Ensure all lights are turned off – closets, under cupboards, desk lamps, etc.
- ✓ Turn off all fans/heaters and any radios.

On a side note, don't forget to take your class pets home, too! ☺

Be a Jugg, Please Unplug!!!

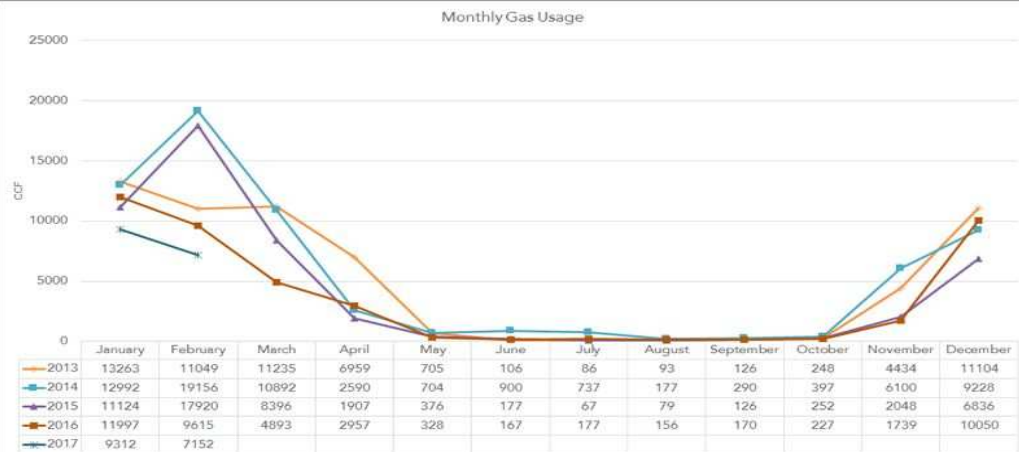
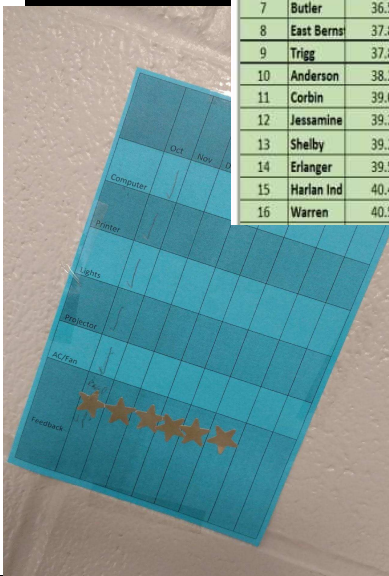


TABLE 2, District Ranking by Energy Use Intensity for FY2016

Rank	District	2016 EUI	2010 EUI	Rank	District	2016 EUI	2010 EUI	Rank	District	2016 EUI	2010 EUI	Rank	District	2016 EUI	2010 EUI
1	Owen	33.2	62.5	45	Christian	44.2	70.1	89	Paducah	50.4	73.9	133	Wolfe	57.1	dnr
2	Nelson	34.8	51.5	46	Pendleton	44.3	55.9	90	Newport	50.6	44.5	134	Bardstown	57.1	72.
3	Marion	35.3	60.3	47	Glasgow	44.3	62.6	91	Lincoln	50.6	70.7	135	Ludlow	57.5	107.
4	Scott	35.9	53.3	48	Calloway	44.4	56.2	92	Carlisle	50.7	46.9	136	Pikeville	57.8	81.
5	Oldham	36.1	45.7	49	Henry	44.5	67.9	93	Campbells	50.8	76.4	137	Mayfield	57.9	60.
6	Walton-Ver	36.2	44.6	50	Trimble	44.5	53.7	94	Livingston	51.0	56.9	138	Laurel	58.2	dne
7	Butler	36.5	42.8	51	Williamsto	44.8	63.3	95	Jenkins	51.1	dnr	139	Martin	58.2	dnr
8	East Berns	37.8	dnr	52	Science Hill	44.9	56.5	96	Owensboro	51.2	70.1	140	Bath	58.6	87.
9	Trigg	37.8	60.2	53	Floyd	44.9	52.0	97	Wayne	51.3	64.2	141	Bowling Gre	59.0	73.
10	Anderson	38.2	52.3	54	Burgin	45.0	60.5	98	Fort Thom	51.3	72.2	142	Ashland	59.5	75.
11	Corbin	39.0	51.6	55	Lawrence	45.1	68.6	99	Adair	51.4	71.1	143	Graves	59.9	dnr
12	Jessamine	39.2	50.3	56	Russellville	45.2	52.5	100	Hickman	51.5	67.6	144	Anchorage	60.2	73.
13	Shelby	39.2	71.6	57	Garrard	45.4	51.5	101	Russell	51.5	80.5	145	Race-Worth	60.5	67.
14	Erlanger	39.5	56.9	58	Clark	45.6	74.7	102	Harlan Count	51.6	55.7	146	Danville	61.2	64.
15	Harlan Ind	40.4	52.3	59	West Point	45.7	dnr	103	LaRue	51.8	55.1	147	Berea	61.3	75.
16	Warren	40.5	50.7	60	Boyle	45.7	65.9	104	McCracken	52.0	62.7	148	Todd	62.2	70.



Shutdown Checklist, Energy Patrol Sheet, and Awesome Data Collection - we are ranked 14th in the state on energy usage because of our conservation!!!

Goal 2 - Partner with middle school energy club and high school technology students to educate others about conserving energy

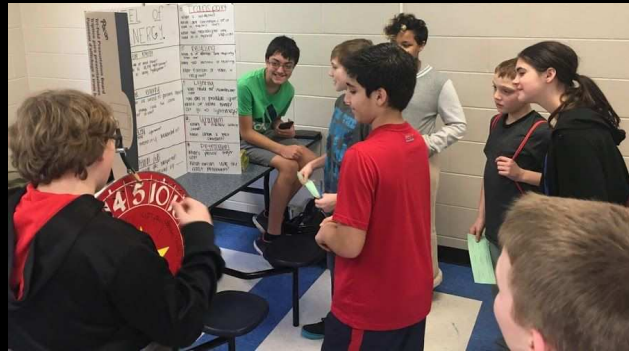
Activities:

- We presented the N.E.E.D energy carnival curriculum by partnering with our middle school to host an Energy Carnival for the Boys and Girls Club to promote energy awareness

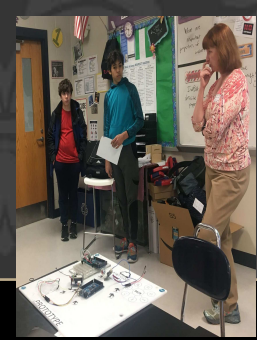
Energy Content and Resources: NEED Energy Carnival Curriculum

Student Leadership: We gathered supplies, created the games, ran the games and taught the younger kids about energy conservation and usage. We also cheered them on and encouraged them!

Evaluation: We used cards to ensure they learned and participated in every game and they received a prize at the end for exploring energy sources. Students reported that they loved the review and now had a better understanding of how to conserve at home!



Goal 2 - Partner with middle school energy club and high school technology students to educate others about conserving energy



Activities: Collaborated with STLP to create sensors for PM and CO2 monitoring in locations throughout our building, determined energy usage from heating and cooling made recommendations to administration for better options for maintaining temps and air quality for classrooms, created idling cessation program for our families to encourage better practice at pickups to increase positive air quality flowing in to our building and encourage energy conservation.

Energy Content and Resources: STLP Minigrant, district energy manager, KY Division for Air Quality,



Student Leadership: Students led and did EVERYTHING! This was a project executed by all of us, with very little assistance from adults other than time and space. We are very excited about this.

Evaluation: We found that the older parts of our building have high CO2 levels, especially nearer entrances at pickups. This is new information to share with families who are not aware. Most are very receptive when we tell them the info and our data shows that more people are choosing to turn their vehicles off during pickups in response to our efforts.



Goal 3 - Reduce energy use when producing raw materials by promoting recycling.

Activity

- Continued the classroom recycling program for non-paper recycling with weekly collection of plastics, metals, glasses, and cardboard.
- Held a district-wide collection of plastic lids to create a Buddy Bench which will be placed at one of our elementary schools.
- Calculated and published our contribution to reducing energy consumption by recycling as a school.
- Installed water bottle filling station to promote re-use of personal water bottles rather than consuming and then producing trash.

Energy content and Resources: <https://www.epa.gov/learn-issues/learn-about-waste>,
<http://homeguides.sfgate.com/much-energy-recycling-save-79720.html>

Student Leadership: We collected the recyclables weekly, calculated how much was being saved by not going into a landfill, then determined how much energy was saved by not having to produce that plastic, aluminum, and glass. Promoted and educated recycling practices for elementary kids by working to gather materials for the bench. Promoted the use of the water-bottle filler among students.

Evaluation: We have collected 3 extra large bags a week for 30 weeks, which means we saved approximately 2,160 kWh of energy from being used to produce the raw materials from scratch! In addition, we collected over 1200 lbs of plastic lids for the buddy bench project, which we calculated to be the equivalent of saving 1200 gallons of gasoline!

PLASTIC WANTED!



Dear Parents/Guardians,

Layton is excited to partner with Illinois Community and University Middle to collect recyclable plastics for the creation of a public bench for the younger children in our district.

WE NEED YOUR HELP TO COLLECT PLASTIC! Please see the attached list of acceptable and non-acceptable plastic that can be collected for our project.

Please reuse this before sending them to school. You may send the plastic in with your student or be deposited at our school as you see it fit or make.

Thank you for your continued support and partnering with our Erlangen Elementary students.



Did you know that we collected eight million pounds of our plastic trash since the launch of our first year?

Did you know?

RECYCLING SAVES ENERGY

EVERY TIME A NEW PRODUCT IS MADE FROM RAW MATERIALS, LARGE AMOUNTS OF ENERGY ARE CONSUMED. RECYCLING PRODUCTS DECREASES THE AMOUNT OF ENERGY IT TAKES TO PRODUCE THESE ITEMS.

WHY SHOULD WE CARE?



Recycling uses LESS energy



so FEWER fossil fuels are burned



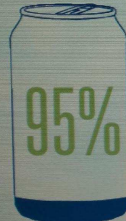
which REDUCES carbon dioxide in the atmosphere



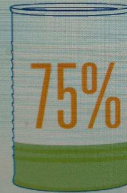
and DECREASES greenhouse gases



which DECREASES global warming.



Using recycled scraps to make aluminum cans uses 95 percent less energy than making cans from raw materials.



It takes 75 percent less energy to make recycled steel than steel produced from raw materials.

ENERGY IS USED IN THE 4 STAGES OF PRODUCT DEVELOPMENT:
EXTRACTION OF RAW MATERIALS
MANUFACTURE OF RAW MATERIALS INTO PRODUCTS
PRODUCT USE BY CONSUMERS
PRODUCT DISPOSAL

Energy plays a role in all 4 stages! Recycle not one of these steps by recycling and you've saved energy.



For more recycling and energy-saving information, visit www.recyclemore.org.



Goal 4 - Increase energy awareness in the community

Activity: We presented N.E.E.D energy carnival curriculum to the community at our local Adopt-A-Block event. We continue the work in our community garden, harvesting squash, kale, and pumpkins and sharing with our school and community at the annual Block Party by telling them how energy is used for agriculture.. In addition, we worked with hundreds of volunteers from NKY to plant trees at Reforest NKY to learn to work the soil and practice conservation.

Energy content and Resources: NEED Energy Carnival, Christ Chapel for volunteers and help with organizing, Disney Youth Service Grant for materials for the garden, Forestry Agency

Student Leadership: We promoted the event, created the games, ran the games, gave out prizes, and spoke with parents individually.

Evaluation: We signed parents up for energy kits and talked with dozens of kids about energy sources and conservation.



Goal 4 - Increase energy awareness in the community

Activity: We are installing a district energy trail on our campus which we will open in late spring. This trail is designed for preschool and elementary school families to walk through at any time. We have created activities to be done at each of five stations and purchased materials to be used in a kit with each station. One of the stations is all about energy use and conservation - we are excited to use solar panels and wind turbines for this area.

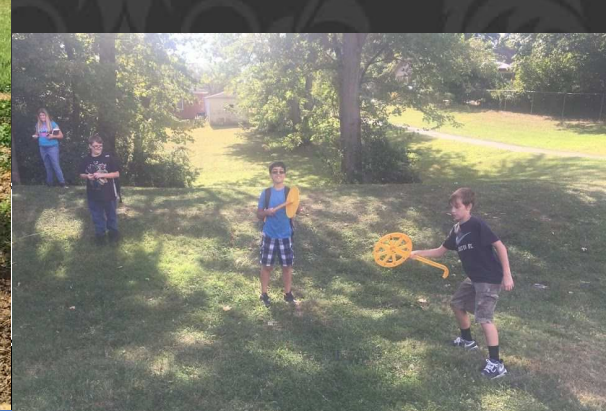
Energy content and Resources: Project Learning Tree, KUPPE Environmental Education Grant for materials for the trail, boyscout troop for installation of signs on wooden posts

Student Leadership: We researched the information we wanted to include in each of the five stations. For data, we had classes at Lloyd run experiments and test to gather information. Then we created the signs, selected our materials for purchase, and presented the ideas to the preschool teachers and county librarians for feedback. We created fun activities for our preschool students to complete at each of the stations.

Evaluation: Preschool teachers were given surveys about their environmental and energy education experiences they provide for their students. Most indicated they did not know how and had limited resources. This nature trail will provide excellent opportunities for exploration.

[Click here for the presentation on our Environmental Learning Trail](#)





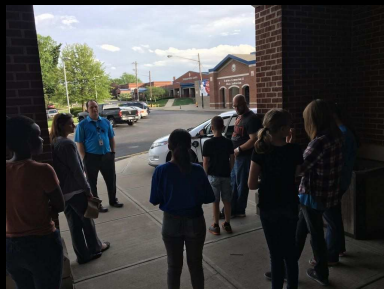
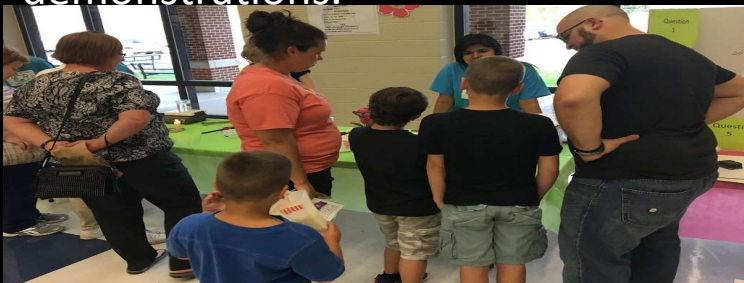
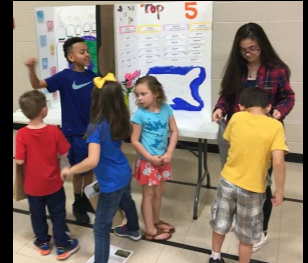
Goal 4 - Increase energy awareness and conservation practices in our community

Activity: We hosted a Community Earth Day Celebration Evening to screen the “Lorax” and provide energy education to our neighbors while also supplying LED bulbs and energy monitors and signing families up for energy conversion kits.

Energy Content & Resources: NEED Science of Energy and Energy Carnival, popcorn donated from movie theater, guests from agencies came to present, Duke minigrant was used for bulbs, prizes. Taking Root helped with the tree seedling giveaway.

Student Leadership: We gave away trees, upcycled crafts, and provided energy demonstrations. We assisted with KY Division for Air Quality and gave an informative demo with a hybrid electric car. We also helped the Conservation District to provide information to families.

Evaluation: A survey was given before and after the film about energy awareness. Dozens of families signed up for the energy kits. We will be doing this event again on April 18th and include DisneyNature’s “Earth” as our film instead. During the event, the team will present information booths they created about each piece of the Duke Energy Kits and provide demonstrations.



Goal 5 - Provide mentoring in the elementary school



Activity: We partnered with Miles elementary school's energy club to present Science of Energy curriculum and energy conservation information to young students and their families in an evening social event we created in celebration of Earth Day. We also spent a day visiting our four district elementary schools to teach the 4th graders about energy transformations using demonstrations and hands on activities in our Energy Tour of Elementary Schools.

Energy content and Resources: NEED Science of Energy curriculum, Taking Root, MES DRUM Ensemble

Student Leadership: We worked with the MES Energy club to present the Science of Energy activities at booths, we also signed parents up for energy kits. We gave away tree seedlings, LED bulbs, and energy monitors as door prizes. We each took a group for the Energy Tour of Schools to present the booths of energy transformation and provide demonstrations.

Evaluation: We surveyed families after the event and signed families up for home energy kits who did not already have one. The fourth grade teachers assessed their students before and after our Tour of Schools and saw a significant increase in understanding about energy sources and transfer.

