

School: Saint Agnes School

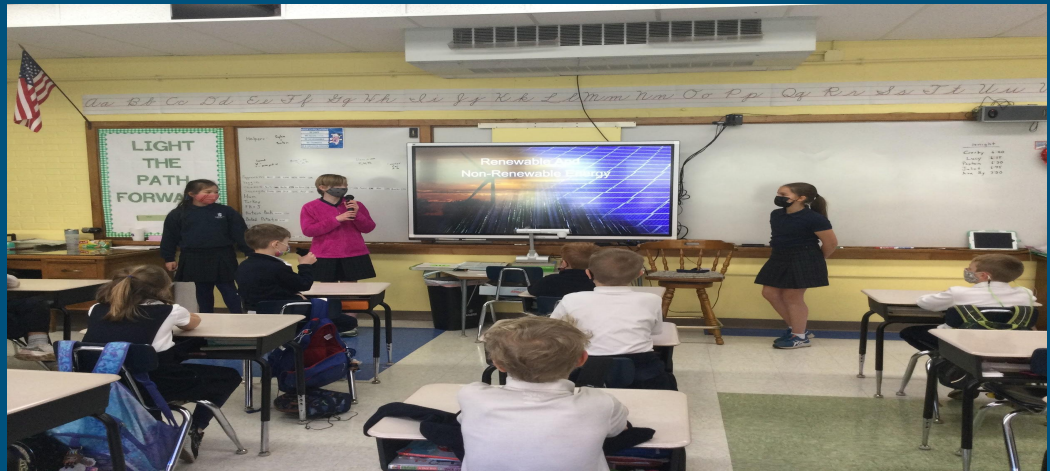
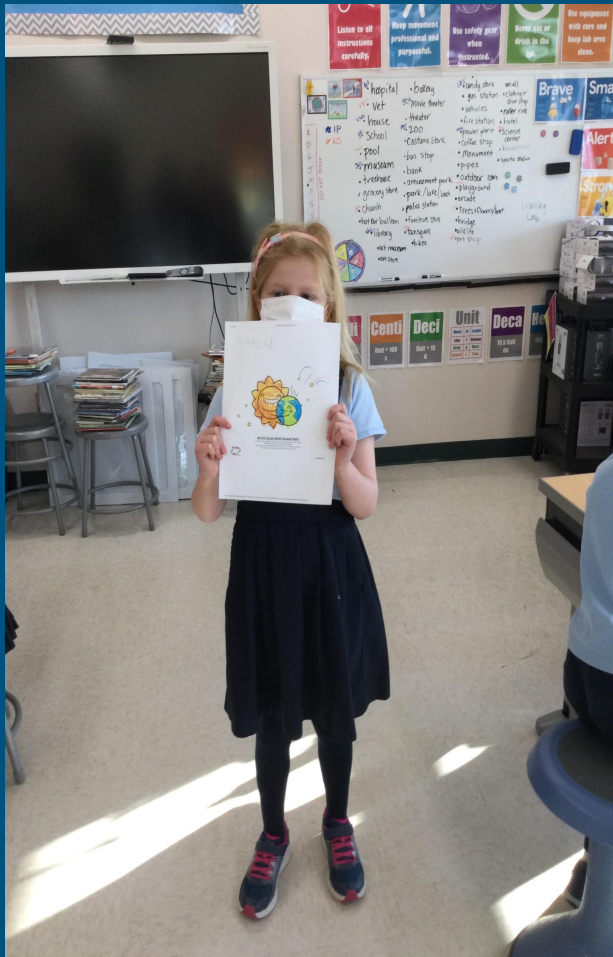
Advisor: Kelley Schleg

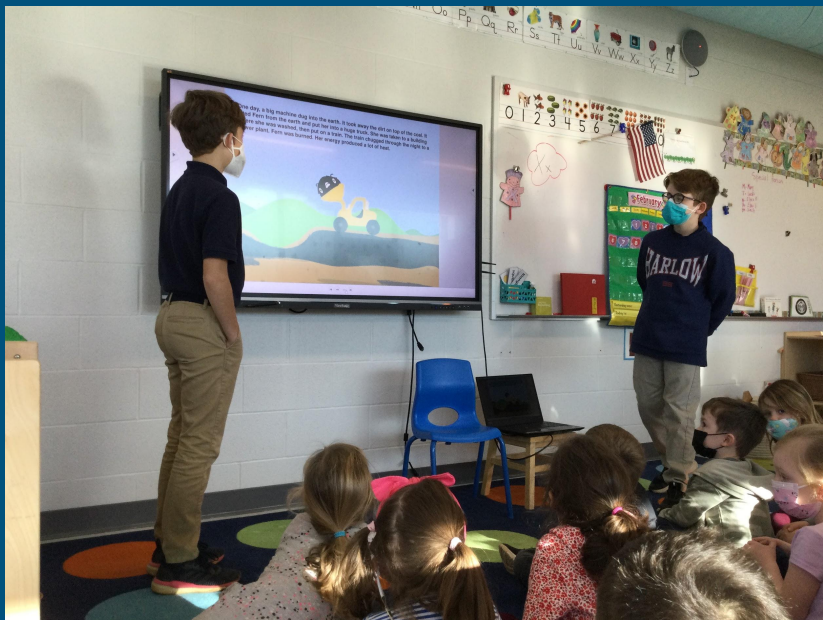
Project Title: The Clean Green Machines

We are fourth and fifth graders from St. Agnes' energy team. We have worked to accomplish several goals this year. Our first goal was to teach our school about the uses of energy and nonrenewable versus renewable sources. Our second goal was to become Energy Inspectors. We divided into small groups and went through the building to measure the temperature in each room, check if lights were left on, windows were open or closed, if the heat was turned on and if smart boards or other technology was on without it being used. We invited our Maintenance Director to speak with us about the energy usage of our building and take us on a tour to show us things they are doing to reduce our carbon footprint in our building and to see what the boiler room looks like and how our heat and air conditioning systems work. Our third goal was to build energy efficient houses and see whose house was the better insulated. Our fourth and final goal was to host an Energy Carnival for the whole school and include our community. For this goal, we decided to do it on Earth Day which is after the deadline for our project. We will include our plans for the games we will be doing. We will have booths where students, teachers, and parents will participate in energy games and learn about energy in fun ways.

GOAL #1 EDUCATING GRADES PRE-K-THIRD

Our first goal was to teach grades pre-k-third about different types of energy. We taught each grade about a different type of energy that was appropriate for their grade level. We taught about recycling, solar energy, wind energy, geothermal energy, hydropower energy and biomass. We also taught them the differences between renewable and nonrenewable energy. We did a fun game of bingo with the second graders and other groups read books, played games and made slideshows to teach the students. Energy club members worked in small groups to plan lessons for different grades.





Students teaching students

GOAL #2 BUILDING ASSESSMENT

Our second goal was to survey our school's energy usage. Our energy club became student inspectors. We surveyed the different rooms throughout the month of March. Our advisor, Mrs. Schleg, taught us about the different measuring tools. We used different measuring tools such as a light meter, a kill a watt meter, and thermometers. We went into various classrooms and offices and measured things such as the outdoor temperature, indoor temperature, number of windows, who is in the room, are the lights on, are the blinds closed, are the doors to classrooms open or closed, and were electronics left on when not in use.

Facility Manager Talk



School Building Survey

Desplan talk

General Information

- When was the school built? 1948, 1964-1969 - 2005 - and we are still not finished!
- What changes have been made since the school was built? When were they made? - yes \$750 a month
- What things use energy on the school grounds? Lighted fields? Outdoor lighting? - yes \$750 a month
- What fuels are used in the school? For heating, cooling, water heating, lighting, other? - electric & gas
- How much does the school pay each year for energy? How much for electricity? How much for heat? - It is tough to say 10,000 a month 20,000 a year
- Are there other energy costs that the school pays for, like buses? - No, because we don't have energy saving systems
- How many hours is the school in use each week? - 4-18 hrs a day
- Do other groups that use the school pay for the energy they use? - No.
- Who is in charge of controlling energy use in the school?
- Who is in charge of maintaining energy-use equipment? Is there a maintenance schedule for all energy-using systems?

Building Envelope

we've got

- What is the building made of? Is it in good condition? Brick & block, and concrete & steel.
- In which direction does the building face? EAST.
- How many windows are on each side of the building? Are any windows cracked or broken? -
- Are the windows single or double-paned? Can they be opened? Do the windows have adjustable blinds? DOUBLE
- How many outside doors are there? Are they insulated? Are there windows in the doors? Are any cracked or broken? 13 - counting the scout room most yes!
- Does the building have insulation in the walls and ceiling?
- Are inside stair walls open or enclosed?
- Do windows and doors seal tightly, or do they leak air?
- Are trees placed around the building to provide shade in warm months?
- Are there awnings or overhangs over the windows to shade windows from the overhead direct sun in warm weather, yet allow the slanted rays in winter to enter?

he didn't answer

Heating/Cooling Systems

- What kind of heating system is used in the school? What fuel does it use? Gas & electric
- How old is the heating system? 1992
- Does the heating system have a programmable thermostat to control temperature? What are the settings?
- What kind of cooling system is used in the school? What fuel does it use? - the CHILLER
- How old is the cooling system? 95 & 98
- Does the cooling system have a programmable thermostat to control temperature? What are the settings?
- Is there an air exchange system to provide fresh air when the heating and cooling systems are not operating? - we've got several some have their own
- Are the boilers, pipes, and ducts sealed and insulated? Yes!
- Are the heating and cooling systems maintained on a regular basis? Yes!
- Does your school make use of passive solar heating? No, not really.

Water Heating

- What fuel is used to heat water in the school? Gas - water heaters and the boilers.
- Is there more than one water heater? How many? yes, 2.
- How old are they? 5-10
- Do the water heaters have timers?
- At what temperatures are the water heaters set? 140°F - 120°F
- Are the water heaters and water pipes insulated? yes.
- Are there leaks in the hot water system?
- Are flow restrictions used? Yes - only in the dishroom

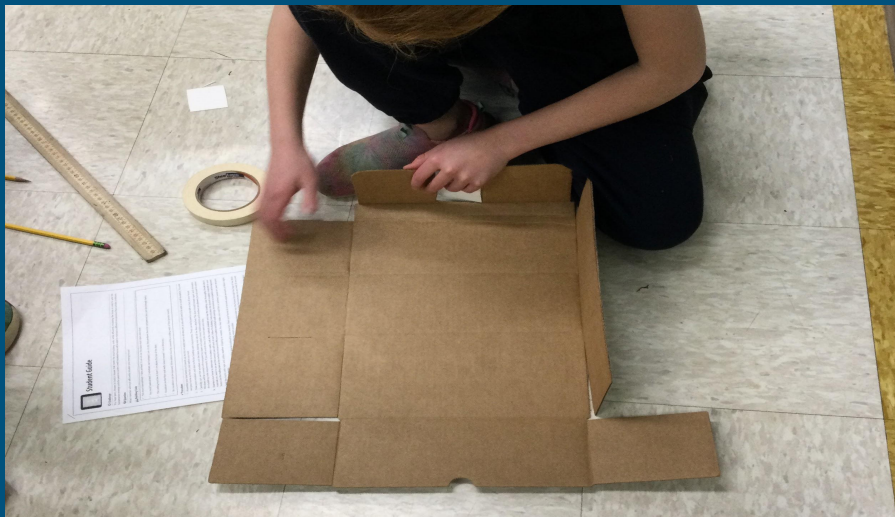
Lighting

- What kind of lighting is used in the school? Outside the school? Exit lights? Various kinds - most LED
- Can the lights be controlled with dimmer switches? In which areas or rooms? some can
- Does the school make use of skylights and natural lighting? No, yes
- Are there timers for the outside lights so they go off automatically? No - and - yes
- Are there automatic timers for any of the indoor lights? Yes!



GOAL #3 BUILDING ENERGY HOUSES

Our third goal this year was to build fun energy houses! We competed to see who could build the most energy efficient house. This was a very effective way to learn about conserving energy and to see what insulating materials were the most successful. We met during our club meeting days to build our houses and then on the 4th date we put our houses to the test. We put the houses outside, then measured the temperature for 1 minute and wrote it down. Next, we put a baggie of ice cubes in our houses and closed the doors. After 15 minutes, we went back out and measured the temperature of our houses. We found that some houses were better insulated and cooled the house better than others!



Energy House Results

	Energy House Results		Winning Team			
Team Number	1	2	3	4	5	6
Beginning Temp.	25 degrees Celsius	20 degrees celsius	23 degrees celsius	23 degrees celsius	20 degrees celsius	23 degrees celsius
End Temperature	25 degrees Celsius	20 degrees Celsius	18 degrees Celsius	21 degrees Celsius	20 degrees Celsius	24 degrees Celcsius
Difference	No difference	No difference	-5 degrees difference	-2 degrees difference	No difference	positive 1 degree different

Energy House Competition



GOAL #4 EARTH DAY/GREEN APPLE DAY OF SERVICE!

We have helped to organize an all school Earth Day celebration. Our whole school will go outside so that we can reduce our energy usage in our building. All classes, grades Pre K through 8th grade, will participate in service projects to make our campus more green. We will have a trash pick up around the campus, we will be weeding around our flower beds, adding mulch to areas that have been washed out by rains, we will plant flowers and vegetables around our new natural playground that was just installed, and we will put in plants around the campus to reduce the heat island effect. We will participate in learning activities about our pollinator garden, we will learn about composting and vermiposting, we will learn about recycling and we will host our Energy Carnival using the resources from NEED. The games we will play are Energy Pictionary, Wheel of Energy, Energy Knockdown and Top 5.

Earth Day/Green Apple Day April 22, 2022

Schedule

Green Apple Day of Service Schedule- April 22, 2022

All homerooms gather at the soccer field from 8:30-8:45 for a morning prayer service.

Category	Art/Service Project		Safety			Pollinator Garden/Recycling/Composting			Mindfulness
Time	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7	Station 8	Station 9
8:45-9:00	1P	3E	KC	2W	2R	1V	5H	8C	3D
9:00-9:15	1V	5H	KO	KC	2W	2R	3E	6M	3D
9:15-9:30	2R	4S	1P	KO	KC	2W	5M	8H	3E
9:30-9:45	2W	5M	1V	1P	KO	KC	4S	7G	3E
9:45-10:00	KC	3D	2R	1V	1P	KO	4W	7P	4S
10:00-10:15	KO	4W	2W	2R	1V	1P	3D	6L	4S

Category	Wetlands	Fitness			Art	Energy Carnival		Service	
Time	Station 10	Station 11	Station 12	Station 13	Station 14	Station 15	Station 16	Station 17	Station 18
8:45-9:00	4W	KO	4S	7G	8H	5M	6M	6L	7P
9:00-9:15	4W	1P	5M	8H	7G	4S	8C	6L	7P
9:15-9:30	5H	1V	3D	6L	7P	4W	7G	6M	8C
9:30-9:45	5H	2R	4W	7P	6L	3D	8H	6M	8C
9:45-10:00	5M	2W	3E	6M	8C	5H	6L	7G	8H
10:00-10:15	5M	KC	5H	8C	6M	3E	7P	7G	8H

Evaluation

- ❑ We educated grades Pre-K-3 about different types of energy using slideshows ,skits, and games.
- ❑ We learned about ways to reduce our energy usage in our building.
- ❑ We became energy inspectors and checked classrooms to see how teachers and students were reducing their energy usage.
- ❑ We measured temperatures, checked windows and doors, measured light output and reported back to our leaders what the findings were and made recommendations.
- ❑ We had our Facilities Manager speak with us about the usage of energy on our campus and take us on a tour to explain energy saving measures taking place.
- ❑ We learned about ways to insulate our homes in order to conserve energy, then built Energy Homes and tested them to see which homes were insulated the best.
- ❑ We planned an Earth Day/Green Apple Day of Service event for the school community and led the Energy Carnival activities.