



Energy Education for all Falcons

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**Graham
Middle
School**

**Signature
NEED Project**

**Graham
Energy Team**



Goal 1: To increase student and our community's knowledge of alternative energy sources, forms of energy, and energy conservation.

Energy Content Activities:

1. New Member Training Day
2. Sixth Grade Presentation on Renewable and Nonrenewable Resources
3. STEAM Showcase
4. Fourth Grade Presentation on Circuits
5. Energy Workshops Using Be E3 Smart Curriculum
6. Energy Fair for 5th graders



Goal 1: cont.

Student Leadership:

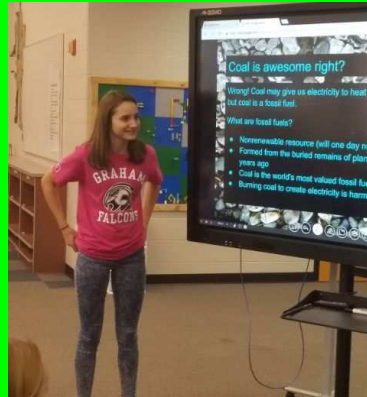
1. GMS Energy Team Veteran members spent a half day training our five new members. The new members were trained using the Energy Bike, Ohio Energy Project curriculum, and prepared lessons for our younger Falcons.
2. GMS Energy team planned and delivered a presentation to 6th graders on renewable and nonrenewable energy. The team concentrated on the nonrenewable energy source of coal since the 6th graders were studying rocks.
3. GMS Energy team did two STEAM Showcase nights at GMS. The team did an energy bike demo and three energy stations (Watt's up?, Sound, Pitch, and Thermal imaging) for students and parents.
4. GMS Energy team planned and delivered a lesson to 4th graders on insulators and conductors as well as circuits. The team ran four stations to teach the fourth graders about circuits. (OHP Electric circuit Energy Baton lesson, Makey Makey, Snap Circuits, and make a potato battery that lit an LED bulb)
5. 6th grade students had the opportunity to sign up for an Energy Workshop by a Google Form. The Energy team used the BE3 Smart workbook lesson Lighting Investigation to teach the students about energy conservation. Because we are a STEM school, the students also used the NEED activity titled Energy House to further discuss energy conservation.
6. The team hosted an Energy Fair using OEP materials for our 5th graders.

New Member Training Day



6th grade presentation

GMS Energy Team taught sixth graders about renewable and nonrenewable resources with an emphasis on coal since the sixth graders were learning about rocks at the time. Sixth graders received a bike demonstration and completed the coal sequence activity. The sixth graders received a take-home kit to save energy from DP&L.



Fifth Grade Energy Fair



4th grade presentation

GMS Energy Team planned and delivered a program to fourth graders that focused on the topics of circuits and insulator and conductors. The 4th graders rotated through energy stations.

Station 1 : Snap Circuits
Station 2: Makey Makey
Station 3: Energy Baton and Insulators and conductors.
Station 4: Potato Battery



Energy Workshops



Goal 2: Launch School Wide and Community Recycling

Energy Content Activities:

1. Invited Susan Hiltibran from North Central Ohio Solid Waste District to speak to the GMS Energy Team about recycling.
2. Worked with our District's Operation Manager to get a recycling container at GMS to be able to recycle more than just paper.
3. Competed in the Bring Your Green Competition and won a \$3000.00 cash prize to further our energy conservation efforts.
4. Purchased new recycling containers to be placed throughout the school building with our cash winnings.
5. Operate a Community Recycling Center the first and third Saturday of each month.



Recycling

Student Leadership:

1. GMS Energy team educated the staff and students of GMS about our new recycling program during a school wide assembly. The team educated others on the importance of recycling, what can be recycled, and will be part of collecting the recycled materials. A school waste assessment was completed to help decide areas that we can increase recycling at GMS.
2. The GMS Energy team has completed activities for the Bring Your Green Competition that has gained points for GMS.
3. GMS Energy team are planning and presenting a recycling program on Earth Day for second graders.



Recycling at GMS



Goal 3: Share our STEM Club with others

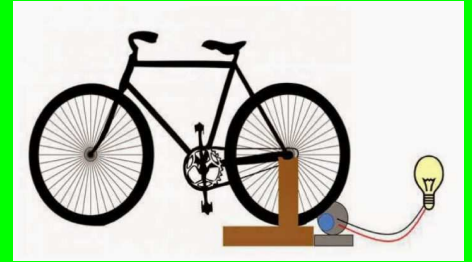
Energy Content Activities:

Present at Ohio School Board Association Capital Conference Student Achievement Fair

Featured in an Article in Green Schools National Network

Present at Dayton Regional Sustainability Luncheon

Video Conference-
Empowering Students to Create and Sustain a Green Culture for National Green Schools Conference



Student Leadership:

The GMS Energy Team was asked by the Superintendent to have a student booth to showcase our all female STEM club. The team talked with attendees about our club, our energy conservation efforts at our school, and our recycling project. The team prepared a newsletter to highlight our accomplishments. The team prepared a Google Slide show showcasing the projects the team has accomplished.

Director of Operations, Don Burley, highlighted our team in an article as part of our district's plan to go green.

GMS Energy Team along with students from Tipp City did an energy bike demonstration.

The Energy Team completed an interview via video conference during a presentation by Don Burley (Director of Operations at Graham at the National Green Schools Conference.

OSBA Student Achievement Fair and Dayton Regional Sustainability luncheon



The Graham Middle School Energy Team



Our Goal: To increase our school and community awareness of recycling and clean energy.

Who Are We?

The GMS Energy Team got its start when Graham Middle School was chosen to attend Ohio Energy Projects: Activating and Energizing Girls in Science and build an Energy Bike for our school. Eight girls were selected to be part of GMS Energy Team and four of the girls built the energy bike. Each girl interviewed and presented on an energy related topic to a panel of three teachers. Women are underrepresented in STEM careers. This team encourages girls to consider careers in STEM.



February 2019



Going Green at Graham Local Schools

By. Don Burley, Director of Operations, Graham Local Schools

STEM education is part of our culture at Graham. In 2018, Graham Middle School and Elementary joined a group of 33 public school buildings in earning designation as STEM schools by the Ohio Department of Education. This rigorous process requires schools to demonstrate a culture of STEM education and results. We are especially proud of our Graham Middle School all-female "Energy Team." These young women have won multiple awards for leadership and implementation of green energy practices across the state and region. They are also committed to educating others. After attending a week-long conference held by the Ohio Energy Project, the team took their learning and developed lessons for their peers and elementary students. On top of that, they teach energy conservation, green practices, and STEM careers at the elementary school and host an annual energy education fair to demonstrate and educate about green practices.



Resources and Evaluation



Resources:

Snap Circuit Pro, Makey Makey, Energy Baton, Energy Bike

Ohio Energy Project Resources: Energy Sources, Energy Relay, Electric Circuits, Sound Pitch, Thermal Imaging, Watt's Up?, Coal Sequence, Energy Bike Resource Guide

NEED Resources: Elementary Energy Infobook, Intermediate Energy Infobook, School Energy Survey

Evaluation:

Teacher evaluation

Surveys

Student Participation

Future Projects:

This team presented a solar energy proposal to the Board of Education last school year. The Board voted yes on the land lease on April 11., 2019. A solar array will be installed over the summer and the Energy Team will use the solar panels for an education piece next school year.