Energezeum

Maryville Elementary Green Team
2023-2024

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Our Project..

- After surveying elementary school teachers in our district we found that teachers have reported spending only 18 minutes a day on science if at all, compared to 90 minutes on reading and 50 minutes on math.
- We love science! We feel students should have the opportunity to be able to learn more about science during the school day and at home.
- We decided to make a school "Energezeum" so students can learn more about science, see our classmates conduct experiments, and get the chance to experience science through video with QR codes.
- Our energezium will focus on forms of energy. We will complete different experiments that showcase the difference between potential and kinetic energy.
- We plan to set up our "Energezeum" in the hallway with informational posters displaying our QR codes. Students will also be able take a flyer with directions to perform experiments at home.
- Students will use ipads next to our posters to watch the experiments live! A

Our year at glance 2023-2024

September

- We started our club.
- Made our goals for the year

November

- We decided on our big project for the year.
- We made a survey to send to our classmates and teachers.

December

- We made and sent out a PSA video for our school and sent to teachers to play.
- We researched and learned more about each experiment. We started to plan our science night

January

- We practiced each experiment.
- We made videos of each one.
- We continued to plan our science night.

February

-We continued to finish our videos. We made QR codes for them.

-Continued to plan our science night to show off our project and bring more science to our community.

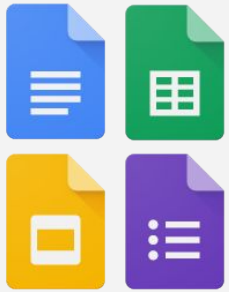
March

-Science night kick off!

-We posted our Energezeum to our schools social media.
-We continued to update our google slides and practiced our presentations for state

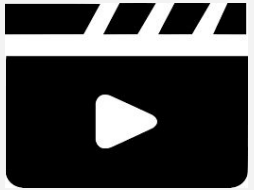
Technology we used...

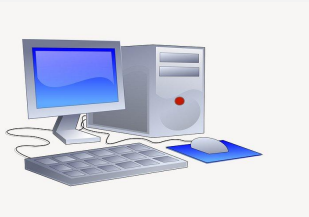
QR codes, video editing, computer/ipad, google slides, canva..



Sources

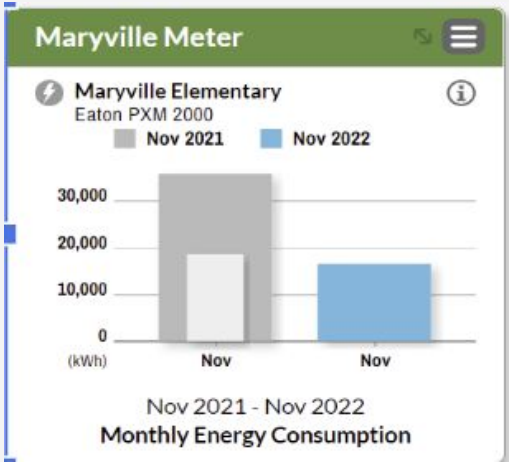
- NEED site: https://www.need.org/
- Google Slides for our presentation.
- Slidego for our presentation theme
- Google Forms for surveys
- Canva for editing and video editing
- Canva to create digital art for poster
- Google for research
- Made QR codes for our videos



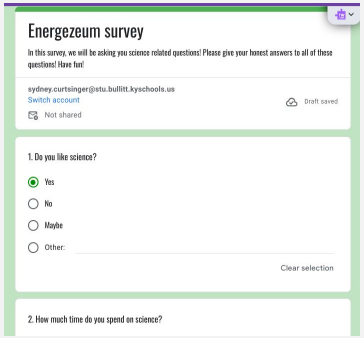


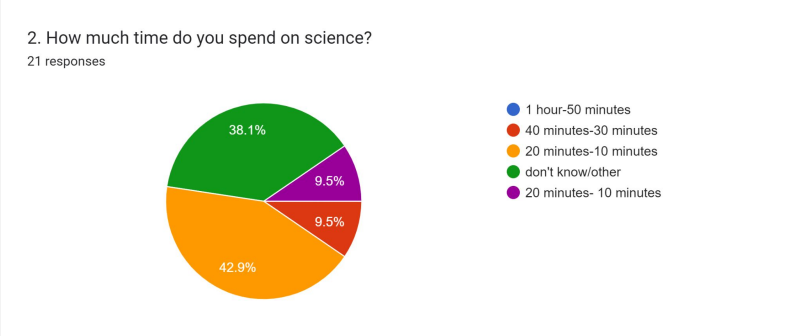
How we measured our impact

- Survey teachers, families, and students.
- Post our videos and QR codes on our schools social media.
- Had entire school watch our PSA video
- Host a school-wide SCIENCE NIGHT where the entire school and community will have a chance to experience our museum.
- View energy usage dashboard from the district to see increase or decrease of usage: https://connect.tis.trane.com/dashboards/85401



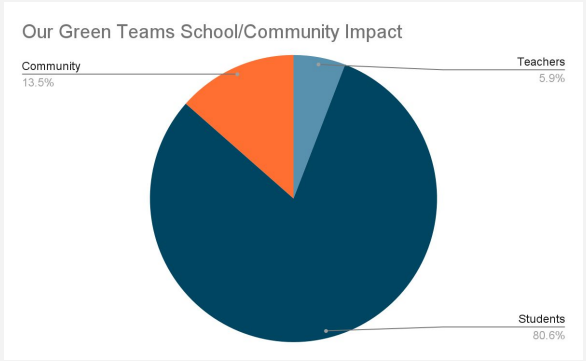
Energezeum Student Survey & Community outreach results

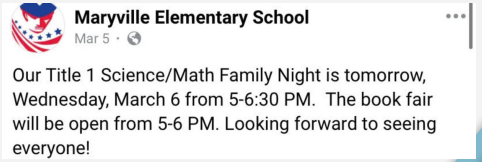




We also made a survey asking students and others about science. Some pictures of the survey and the link to it are down below [you may need to zoom in to see the questions on the pictures.]

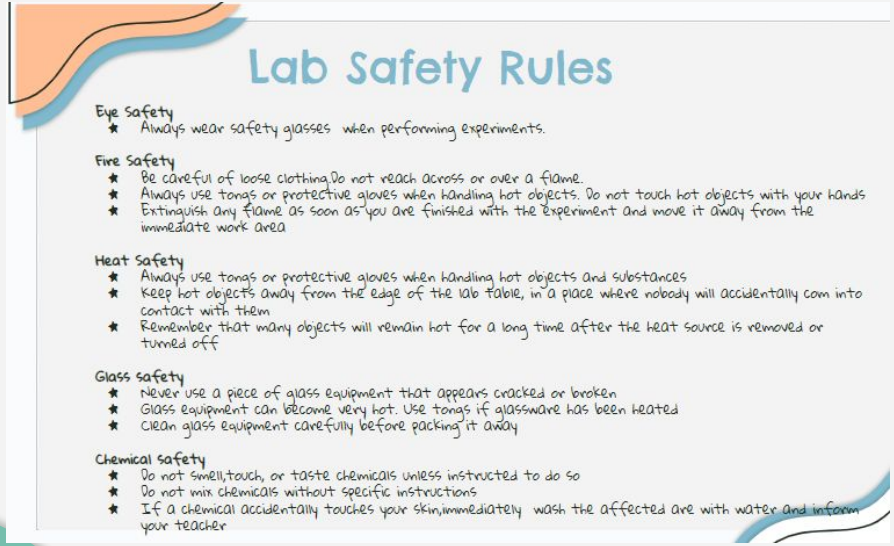
https://docs.google.com/forms/d/e/1FAIpQLSf6JeNlYEfjVVnR4YeOjPeKh_G-6vO9-8I7Q5_QrGFncipMPw/viewform?usp=sf_link





PSA video

EnergeZeum Presents...
MES
SCIENCE NIGHT



Lab Safety Rules

Eye Safety
- Always wear safety glasses when performing experiments.

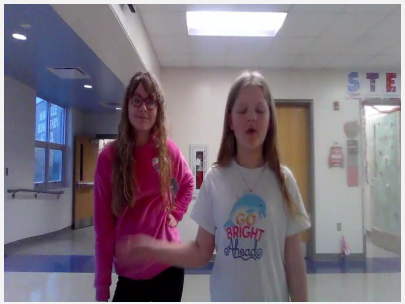
Fire Safety
- Be careful of loose clothing.Do not reach across or over a flame.
- Always use tongs or protective gloves when handling hot objects. Do not touch hot objects with your hands
- Extinguish any flame as soon as you are finished with the experiment and move it away from the immediate work area

Heat Safety
- Always use tongs or protective gloves when handling hot objects and substances
- Keep hot objects away from the edge of the lab table, in a place where nobody will accidentally com into contact with them
- Remember that many objects will remain hot for a long time after the heat source is removed or turned off

Glass safety
- Never use a piece of glass equipment that appears cracked or broken
- Glass equipment can become very hot. Use tongs if glassware has been heated
- Clean glass equipment carefully before packing it away

Chemical Safety
- Do not smell,touch, or taste chemicals unless instructed to do so
- Do not mix chemicals without specific instructions
- If a chemical accidentally touches your skin,immediately wash the affected are with water and inform your teacher

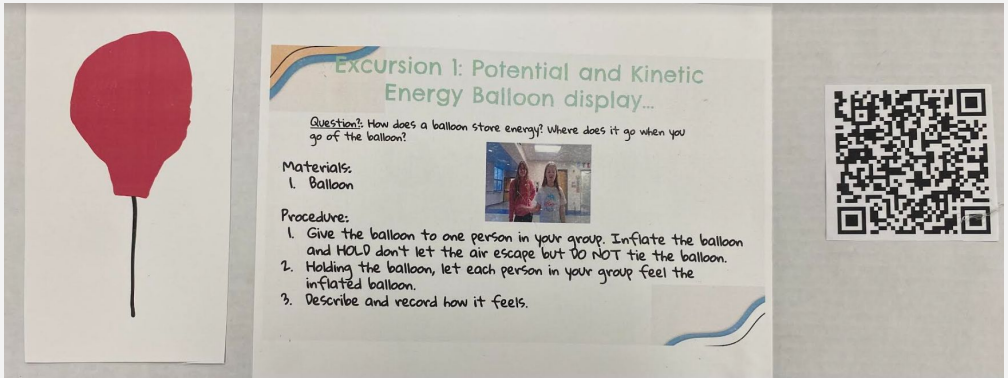
Excursion 1: Potential and Kinetic Energy Balloon display...



Question?: How does a balloon store energy? Where does it go when you go of the balloon?

Materials:
1. Balloon

Procedure:
1. Give the balloon to one person in your group. Inflate the balloon and HOLD don't let the air escape but DO NOT tie the balloon.
2. Holding the balloon, let each person in your group feel the inflated balloon.
3. Describe and record how it feels.



Video Link: https://drive.google.com/file/d/1UBZoTVxs9m2E65uE6qAWxTBX0L4ZbMN4/view?usp=sharing

Excursion 2: Exothermic and Endothermic

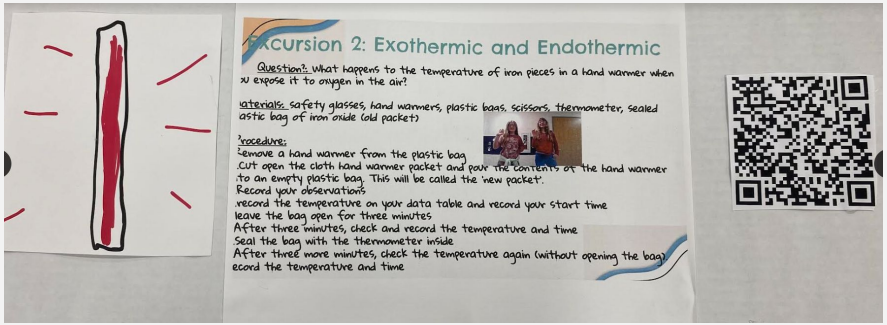
Question?: What happens to the temperature of iron pieces in a hand warmer when you expose it to oxygen in the air?

Materials: safety glasses, hand warmers, plastic bags, scissors, thermometer, sealed plastic bag of iron oxide (old packet)

Procedure:

1. Remove a hand warmer from the plastic bag
2. Cut open the cloth hand warmer packet and pour the contents of the hand warmer into an empty plastic bag. This will be called the 'new packet'.
3. Record your observations
4. record the temperature on your data table and record your start time
5. leave the bag open for three minutes
6. After three minutes, check and record the temperature and time
7. Seal the bag with the thermometer inside
8. After three more minutes, check the temperature again (without opening the bag). Record the temperature and time

Video Link:
https://drive.google.com/file/d/1ZD0_6pB5SmC5HKlN0UdN5994Oz9bz2dQ/view?usp=sharing



Excursion 3: Radiant energy transformation

How does direct sunlight affect the temperature of an object

Materials: Thermometer,sunlight or light source (using incandescent or halogen bulb) ,safety glasses

Procedure:
1.Place one thermometer in direct sunlight and the other in the shade
2.Lable one "sunny" and the other "shade.
3.Record the starting temperature of both temperature
4.Record the temperature on both thermometers in your data table every three minutes
Vocabulary: Absorb,radiant energy,thermal energy,transform

Video Link:
https://drive.google.com/file/d/1F0Z9pxnNgNug4cUvdpo0QvarsoSgTolG/view?usp=sharing

Excursion 4: thermal energy and motion energy

Question: What energy transformations take place when you rub your hands together and bend a paperclip?

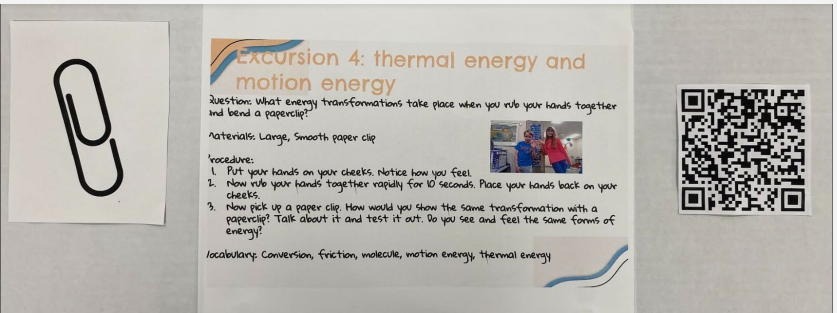
Materials: Large, Smooth paper clip

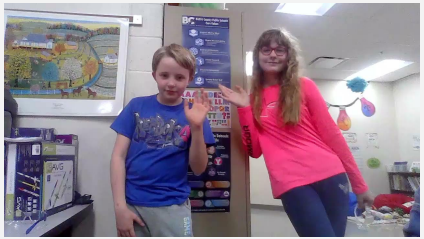
Procedure:

1. Put your hands on your cheeks. Notice how you feel.
2. Now rub your hands together rapidly for 10 seconds. Place your hands back on your cheeks.
3. Now pick up a paper clip. How would you show the same transformation with a paperclip? Talk about it and test it out. Do you see and feel the same forms of energy?

Vocabulary: Conversion, friction, molecule, motion energy, thermal energy

Video Link: https://drive.google.com/file/d/1V2kozc4M9ah8Yz3Uytr5sAjaQxS1ZjqX/view?usp=sharing





Excursion 5: Chemical Energy

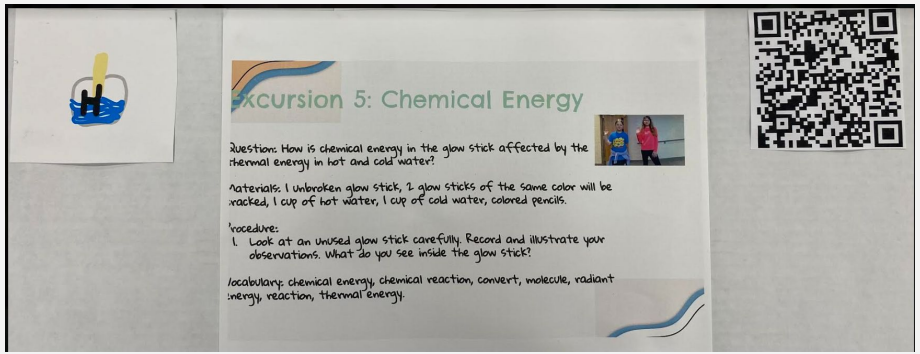
Question: How is chemical energy in the glow stick affected by the thermal energy in hot and cold water?

Materials: 1 unbroken glow stick, 2 glow sticks of the same color will be cracked, 1 cup of hot water, 1 cup of cold water, colored pencils.

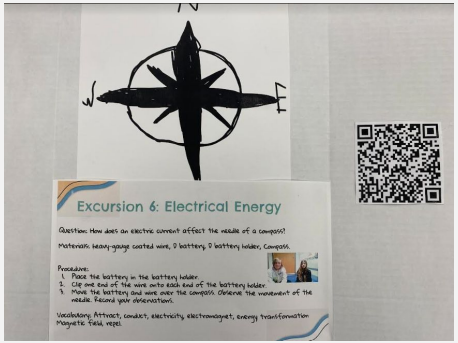
Procedure:

1. Look at an unused glow stick carefully. Record and illustrate your observations. What do you see inside the glow stick?

Vocabulary: chemical energy, chemical reaction, convert, molecule, radiant energy, reaction, thermal energy.
Video Link: https://drive.google.com/file/d/1_WXSO69gpEm2wv8NUyiTwkj3T2Fs9-NP/view?usp=sharing



Excursion 6: Electrical Energy



Question: How does an electric current affect the needle of a compass?

Materials: heavy-gauge coated wire, D battery, D battery holder, Compass.

Procedure:

1. Place the battery in the battery holder.
2. Clip one end of the wire onto each end of the battery holder.
3. Move the battery and wire over the compass. Observe the movement of the needle. Record your observations.

Vocabulary: Attract, conduct, electricity, electromagnet, energy transformation
Magnetic field, repel.

Video Link:
https://drive.google.com/file/d/1pHUNDyLIuqBFnPVj7Tj4W15b7-PkagIB/view?usp=sharing


KIND


DREAM BIG
BEST DAY
SMILE
BFF
LOL
MY PAL
UR KIND


KIND


KIND