Dear Family,

Our class is going to experience the Project Lead The Way module, *Energy Exploration*. In this module, students explore energy-related phenomena. Through hands-on activities, students learn that energy is present whenever there are moving objects, sound, light, or heat. Then they explore how energy moves through a system.

Students learn that people often convert energy to meet a need or a want. They read about William Kamkwamba who designed a windmill to bring electricity to his community. Inspired by Kamkwamba's story, students follow the design process as they design a windmill prototype with blades that turn when moving air passes over them.

To deepen their understanding of energy, students follow the scientific inquiry process as they test what happens when marbles collide on a track. Finally, students apply the knowledge and skills they have gained, as they work together to design, test, and refine a device that converts energy from one form to another.

Items You Can Donate

For this module, we need a variety of items to explore energy. If you can donate any of these items, we would greatly appreciate it.

Item	Type
Kitchen item	Potatoes
Measuring tools	Measuring tape
	Yardstick
	Meterstick
Miscellaneous items	Rubber bands
	Bubble wrap
	Plastic wrap
	Pipe cleaners
	Aluminum foil
	Cotton balls

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Activities You Can Do at Home

We wish to maintain a collaborative relationship with our students' families to coordinate activities you can do at home with what we're learning in school. Making connections to careers and your local community not only builds upon students' lived experiences but also makes the learning relevant. Take advantage of local events and opportunities that allow your child to connect with others and see first-hand how they can contribute. Encourage friends and family members to share their own career journey and experiences.

Suggested ways that you can build upon the concepts in this module include:

- During your next family game night, visit your local bowling alley! Observe what happens when the bowling ball is rolled down the lane at different speeds. Describe what you observe and hear when the ball strikes the pins. If you don't have a local bowling alley, set up your own game in your home, backyard, sidewalk, or driveway.
- Go on a scavenger hunt inside and outside your home to look for energy transfers. When you find energy transfers, discuss with your family how the energy is being transferred in the system.
- The next time you travel through your community, region, or state, watch for windmills and wind turbines. Consider what they might be used for.

Thank you for supporting your child's learning. For more information about Project Lead The Way, please visit www.pltw.org.

Sincerely,

Karly Ora/ Kora@fhps.net

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Dealing with Misconceptions About Energy

Throughout the Energy Exploration module, students may have misconceptions about energy. Understanding these common misconceptions helps you address them if you notice them at home.

Misconception	Reality
Energy is associated only with movement.	Energy is all around. Even stationary objects have energy due to their shape or position (sometimes called potential energy).
Batteries have electricity inside of them.	A battery does not have electricity inside of it—it stores energy. The energy stored in a battery has been transferred from somewhere else.
Energy is a force.	Energy is needed to create a force, but it is not the force. A force is a push or a pull. Energy transfers from place to place by sound, light, heat, force, or electric current.
Energy is a substance or fluid that flows.	Energy is not matter. It is not a solid, liquid, or gas. Energy cannot be seen; however, you can see evidence of energy transfers.
A solar panel produces energy.	Energy is neither created nor destroyed. A solar panel converts energy from the Sun to electricity.
A wind turbine produces energy.	Energy is neither created nor destroyed. A wind turbine converts energy from wind to electricity.
Energy is made in a hydroelectric plant.	Energy is neither created nor destroyed. A hydroelectric plant converts energy from moving water to electricity.

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