Power It Up

An Exploration of Electrical & Renewable Energy

POWER IT UP uses model wind turbines to engage students in an investigation of electrical energy and magnetic forces. Students work in collaborative groups to construct, test, and re-design model turbines. They demonstrate their critical thinking as they work to improve their model's output based on data collection and observations.

In addition to supporting students' understanding of the scientific process and STEM concepts, this lesson is also designed around the following Next Gen and curriculum standards:

- **Engineering Design** – Increase students' understanding of efficiency in regards to renewable energy and developing technology.
- **Information Literacy** – Recognize and discuss how renewable and non-renewable resources are utilized in Maryland.
- **Thinking and Academic Success Skills** – Collaboration and Flexible Thinking.

This lesson equips students with both the knowledge and resources to step into the role of citizen scientists and engineers, as they explore the potential power of wind. It provides students with an opportunity to build upon their understanding of key concepts as the debate between renewable and non-renewable resources continues. Power it Up empowers students to be critical thinkers and innovators in a growing STEM based field of study.

The cost of this lesson is $10.00 a student.

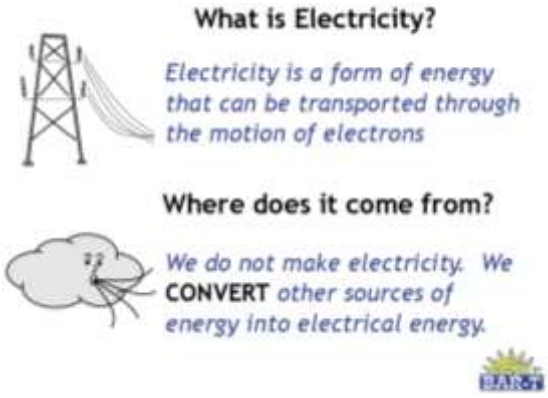
Contact us to learn more about: **Power It Up**

Shannon Richardson
Director of Outdoor and Environmental Education
srichardson@bar-t.com or 301-874-4657

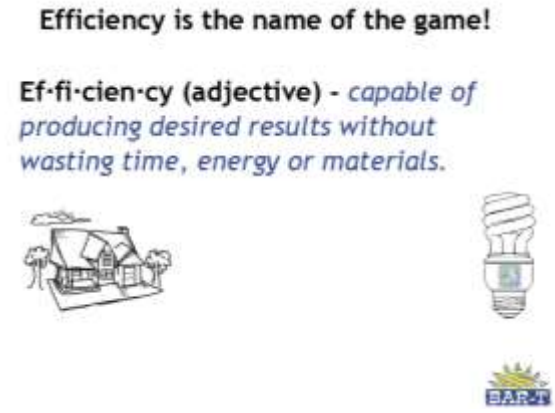
Mountainside Education Enrichment

BAR-T

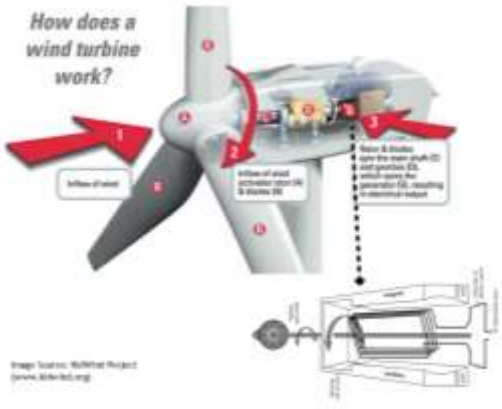
A few screen shots from our Power It Up Flipchart



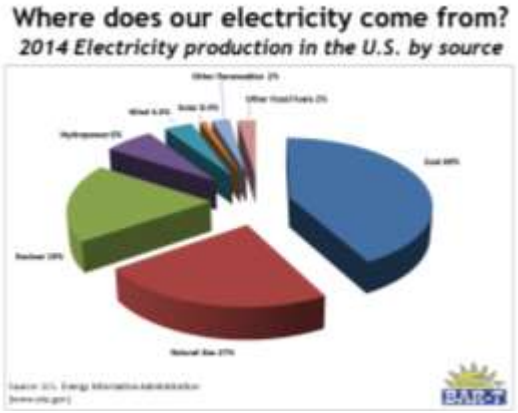
We start by discussing what electricity is. We ask who has used it that day and discuss different examples. Then we take it a step further to help students understand, we do not make electricity we CONVERT it.



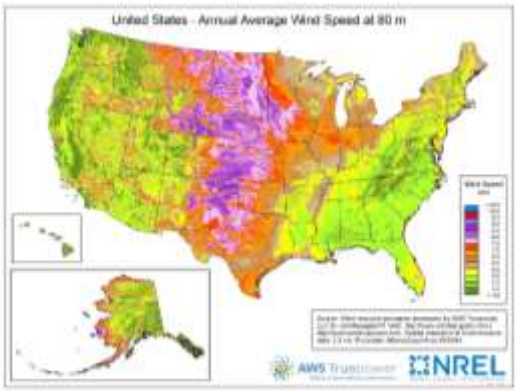
We explore the concept of efficiency through studying lightbulbs.



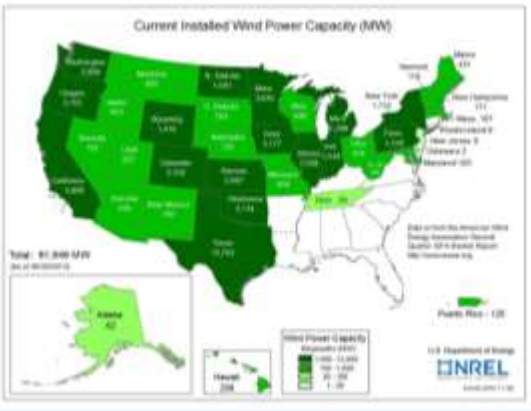
Students are introduced to the basic fundamentals and inner workings of a generator and turbine to assist them in the design and construction process.



After testing the model turbines we take a closer look at the debate between nonrenewable and renewable energy sources, on both a national and local scale.



To further our discussion on efficiency, while making a case for wind energy, we gather additional information from national and local wind capacity maps.



Lastly, we examine the current installation of wind power in the United States, in order to draw final conclusions on wind as a viable source of energy.