

Nicole Leatherwood, Gresham Middle School, 6th Grade Science

Going Big Green in Neyland Stadium!

6.ESS3.1 Differentiate between renewable and nonrenewable resources by asking questions about their availability and sustainability.

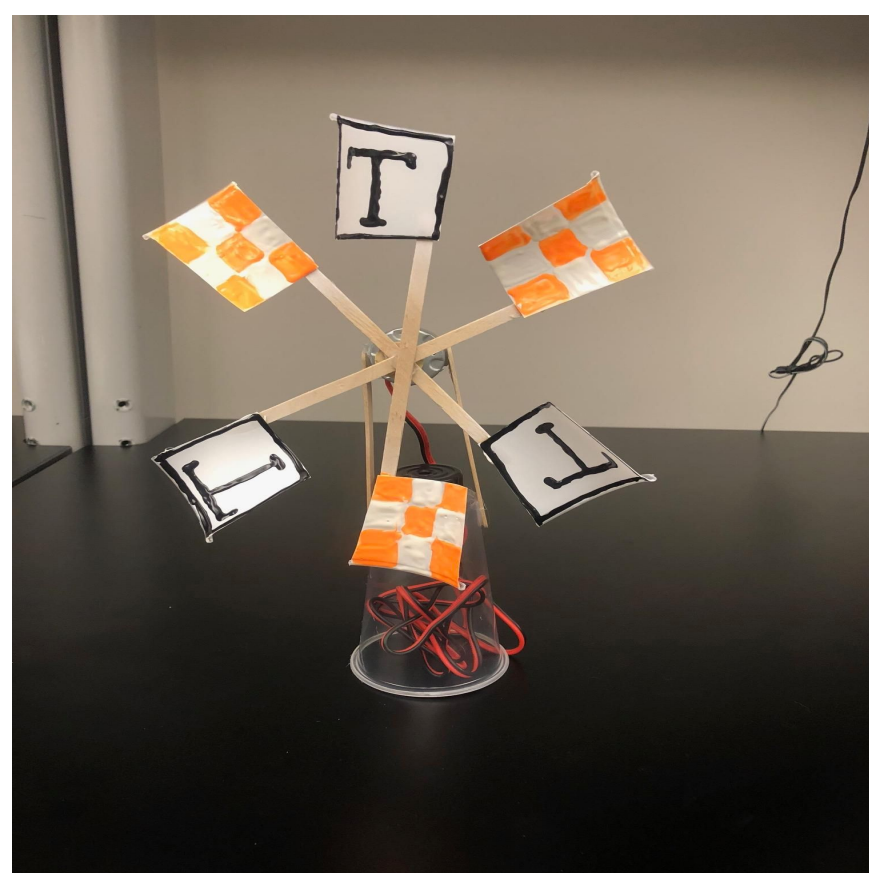
Students will research, design, and create micro turbines for Neyland stadium.

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- Research a non-renewable and renewable resource that are used for the same purpose (fuel, construction, etc) and asking questions about their usage, sustainability
- Conduct the Engineering Process (brainstorm possible solutions, plan/design prototype, build and test prototype, record results, evaluate, improve, and re-test

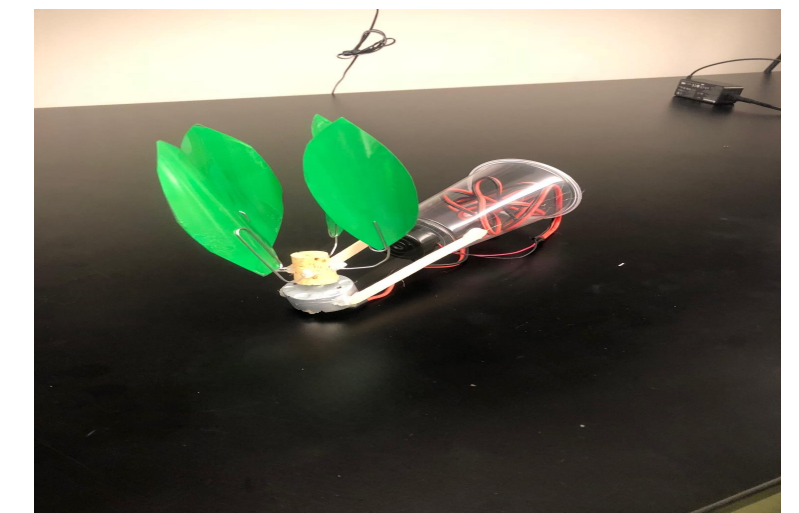
Materials:

Small motor with wire (1)
 Buzzer 4-28 watts (1)
 Craft sticks (2 packs)
 Corks (class set)
 Paper clips (2 packs)
 Small plates (1 Pack)
 Paint (1 pack of multiple colors)
 Cardboard (4 boxes)
 Rubric and criteria
 Engineering design handout
 Plastic cups (2 packs)



PROCEDURES

- 1.Students will be given articles and information about renewable energy and what University of Tennessee is doing to become Energy efficient.
- 2.Students will be given a challenge to design and build a prototype of a micro wind turbine for Neyland stadium.
3. The students will use the engineering design process to build and test their prototypes.
4. The students will present their prototype to the class.



OUTCOMES/ESSENTIAL QUESTIONS

- You will be challenged to design and build micro wind turbines for Neyland stadium that are aesthetically pleasing and energy efficient.
- What are the aspects and limitations that need to be considered when implementing a renewable resource?

The Big Energy Debate

6.ESS2.4 Apply scientific principles to design a method to analyze and interpret the impact of humans and other organisms on the hydrologic cycle.

Students CAN collect data and differentiate the impacts with at least proficiency in 3 of 5 areas covered on rubric of hydroelectric and nuclear power on humans and other organisms by the end of the lesson.

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- Gather data to identify human impacts on the water cycle (generating power through hydroelectricity which keeps water stored in reservoirs).
- Communicate findings from research on the impact of humans and organisms to the hydrologic cycle.

Materials:

Rubric
 Cost/Benefit analysis sheet
 Scenario with questions
 Hydroelectric and Nuclear Energy Presentation Guidelines
 Computer
 Digital resources provided by teacher, hard copies provided if needed.

Summary:

Students will gather data about the impact of nuclear energy and hydroelectric energy. They will then analyze and interpret the negative and positive aspects of each kind of energy source. The students will then draw a conclusion as to which might work better for the overall needs of humans and the local ecosystem.

OUTCOMES/ESSENTIAL QUESTIONS

Essential Question: What are impacts on humans and other organisms of hydroelectric and nuclear energy?

Nuclear

VS.

Hydroelectric

