

Eco-Wind Generator

Grades 6+ | Students Served: 30

MIDDLE LEVEL

HIGH SCHOOL



Essential Questions

What fuel might replace oil as the primary fuel source for travel?

How do the aerodynamics of blades affect a turbine's efficiency?

What are the long-term benefits to the community of developing a wind farm?

Career Connections:

- Environmental Engineer
- Industrial Engineer
- Meteorologist
- Wind Turbine Technician

STEM Connections

Science

- Alternative energies
- Energy transformations
- Electricity production

Technology

- Energy conservation
- Social perspectives
- Environmental perspectives

Engineering

- Problem solving
- Modeling
- Technological design

Math

- Proportions
- Data analysis
- Formulas



Sample Activity

Blade Overload

Challenge

Students build an Eco-Wind Generator and determine the number of blades to produce the most energy generated.

- Prior to building, students sketch the generator with various blades and determine the best design.
- After building, they test the Eco-Wind Generator using a fan and record the results of the experiment.
- Students then make changes to the Eco-Wind Generator blades and record the results.

Discussion

Draw conclusions about your turbine design. What is the most desirable number of blades? How does the shape of the blade affect the turbine's efficiency?