

Guiding Question: What are some different variables that affect wind blade effectiveness?

Learning Goal: Design a wind blade that produces the most amount of power

Agenda

- 1) Review requirements for wind energy
- 2) Design time
- 3) Official testing
- 4) Complete form

Words of the day

Innovation



Exit Ticket



- 1. How did you change your designs throughout your unofficial tests?**
- 2. What constraints (things that limit what you want to do) did you find in your design?**
- 3. What changes are you going to make to your design for your official tests?**

Testing Your Wind Blade_s

You can do a few unofficial tests today, **OFFICIAL TESTS WILL BEGIN WITH 30 MINUTES LEFT OF CLASS. YOU WILL HAVE 2 OFFICIAL TESTS.**

YOU WILL READ 2 NUMBERS TODAY THE VOLTAGE AND THE AMPERAGE.



Using the quick hub



Using The Blade Pitch Protractor



DESIGN YOUR OWN BLADES

Design

1. Sketch and describe the design of your blades (length, shape, number, materials, etc).
2. Explain why you designed your blades this way. Use data from Lesson 10 (if completed) to support your initial design.

Complete answers to #1 and #2 based on your unofficial trials.

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Final designs will be judged on the following features

- Amount of power produced
- Quality of Construction
- Innovation (Creative thinking)

Official Test Runs will start with 30 Min left in class. Tables will be called at random.

Test Run 1

Test your blades 1 meter from the fan for 30 seconds and record your data below.

Power=Voltage × Amps

	VOLTAGE	AMPERAGE	POWER OUTPUT
<i>High Wind Speed</i>			
<i>Low Wind Speed</i>			

EVERYBODY
Must get a
video clip of
your blades on
the hub.

Modifications

3. What modifications could you make to your blade set to increase the power output?
4. Why do you think these blades would work better?

Test Run 2

Test your modified blades 1 meter from the fan for 30 seconds and record your data below.

	VOLTAGE	AMPERAGE	POWER OUTPUT
<i>High Wind Speed</i>			
<i>Low Wind Speed</i>			



Use the results of RUN 2 to complete the form
"OUR WIND BLADES"

<http://goo.gl/forms/rExrz4HBr3>

MUST BE COMPLETED BEFORE THE NEXT CLASS