Wind Turbine Blade Design Challenge

KidWind Challenge: classroom version



Design Brief

- Background
 - Wind turbines harness the clean, renewable energy in the wind to generate electricity. Wind turbines can range is size to work in different wind speeds and to generate different amounts of energy. Turbines have three main parts a tower, a nacelle containing the generator and sometimes a gearbox, and the rotor which is made up of the blades attached to a hub.
- Challenge
 - Design and build wind turbine blades to generate the most electricity using a given model turbine
- Criteria
 - Must operate safely for 30 seconds under fan's high speed
 - Must use the given generator and turbine base
- Materials
 - 12 hole crimping hub (KidWind)
 - Dowels to attach blades to hub
 - Anything you can think of cardboard, wood, recycled containers, popsicle sticks, etc
- Tools
 - Glue, tape, scissors, box cutters, etc.
 - Multimeter or voltmeter to measure output





Procedure

- Restate the problem in your own words
- Brainstorm solutions (drawings encouraged)
- Create the solution you think is best
- Make an accurate drawing of your completed turbine labeling all the parts and dimensions.
- Test your solution (provide worksheet with table and leading questions)
- Evaluate your solution
 - Why was it the best?
 - Would one of your other ideas have been better? Why or why not?
 - Describe one thing you could do to improve the next blades you build.