

Trial/Pilot Event

Contact the organizers of your tournament to find out what trial/pilot events will be held.

Wind Power

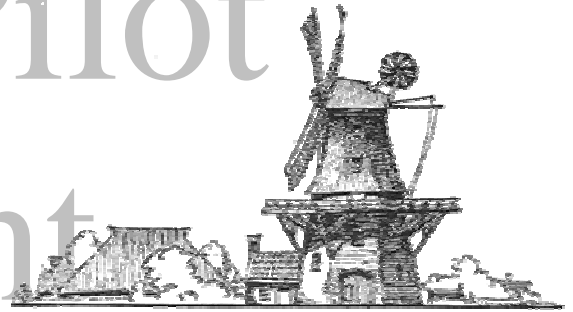
Description - Teams of two students will build a propeller system attached to a compact disc (CD). The propeller system which generates the greatest voltage, from a gentle and a strong breeze, will be the winner.

Teams: 2 students **Time :** 50 min.

Materials – Each team will receive a manila folder, typing paper, tape, and two used CD's.

Construction Tools may include: Protractor, Scissors and a Ruler.

Competition: Each team will have 40 minutes to construct a propeller system made by attaching blades to a CD with tape. The blades may be made from the manila folder, tape and paper only. Propellers may be of any design (Number of blades, length of blades, width of blades, pitch of blades, curvature) but are limited to the materials provided and the space on the forward surface of the CD



1. We will measure the voltage produced with a volt meter or a multi-meter. Readings will be observed over one minute and the highest value recorded for both the gentle and strong breeze.
2. Each team is encouraged to construct, test and reconstruct as many propeller systems as possible in the allotted time. Only the final propeller system will be tested for scoring purposes.
3. Two testing areas will be set up for students to test each new design of the propeller systems. These areas will consist of a fan, generator for mounting the propeller and a single voltmeter or multi-meter. Each team will be allowed the maximum amount of time to test their prototypes. (Maximum time will be determined as 30 minutes divided by the number of groups competing.)
4. No part of the blades may extend behind the CD at any time before, during or after testing. The CD may not be modified, and the center of the CD shall not be obstructed in any fashion.
5. Contestants may choose to have their propellers operate at an angle either perpendicular or parallel to the wind direction.
6. The distance from the wind source to the propeller systems, and the axis height of the propeller will be announced by the supervisor at the beginning of the competition.

Scoring: Each team will submit one propeller system for final testing. The final propeller systems for all teams will be tested on the same motor and with the same wind source (Fan) set on the same speeds. Propeller systems will be mounted at the same height and the same angle to the wind direction. The supervisor will make every attempt to limit any differences in testing conditions.

The teams who's propeller system generates the greatest total voltage will be declared the winner. Total voltage will be calculated as the sum of the voltages at low wind speed and high wind speed.

Ties will be broken by massing the propeller systems. The propeller system with the smaller mass will be ranked ahead of systems with greater masses.

Gentle breeze voltage _____ + Strong Breeze voltage _____ = _____ total voltage

Mass of propeller system = _____ g