ALTERNATIVE ENERGY DESIGN

THIS IS A CHAPTER EVENT AND SHOULD BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 13, 2017.

DIVISION 40501 Alternative Energy Design

CLASS
01 Wind Turbine

OBJECTIVE: The objective is to build a wind turbine fan that will generate the highest voltage.

Entries are limited to one per chapter. (One team member will demonstrate on site)

PROCEDURES: One (1) Student per team should submit the completed fan during check-in at Reaves Arena at the Georgia national Fair. During turn in, you will sign up for a time to return setup and test your blade system.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:

1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. If you have questions, you may certainly e-mail us at sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. Students will will sign up for a time slot and test their own devices in front of the judges. Students will have 30 seconds to set up prior to testing.
3. The device must pass a GO-NO-GO inspection including a safety inspection to insure no harm or damage will occur. Any unsafe devices WILL NOT BE TESTED and be counted as a disqualification.
4. The device must meet the following specs:
- Stand Height: 24 in (must use stand with gear box system provided by GATSA)
- Maximum blade diameter: 36 in
- Maximum number of blades: 12

MATERIALS:
- KidWind Wind Turbine Hub - Part # KW-WTH3 - Part Url is:http://www.vernier.com/products/kidwind/wind-energy/kw-wth3/
- Any materials may be used for blades and must be attached by dowel to the hub
- Dowel material is student choice

TESTING:
- Student will attach their hub and blade system to the provided KidWind Stand and Gear System. Only the approved Kidwind Hub will be used. Part Url is:http://www.vernier.com/products/kidwind/wind-energy/kw-wth3/
- 4 Box fans will be used to create a wind tunnel (2 fans on bottom with 2 fans on top). Wind tunnel will be 48inx48inx48in cube open on the back

EVALUATION:
- Voltage will be measured using a multimeter attached to the generator leads
- Student will have three opportunities and the three voltages will be averaged.
- Award places determined by voltage ranking
- Ties will be broken by testing efficiency of the wind turbine

First Place Winner
(Brochure Challenge)
Nathan Sutton,
Fannin High School