

**WIND TURBINE JUDGING DOCUMENT**

TEAM NAME: \_\_\_\_\_

LEVEL:

4th-5th Grade

6th-8th Grade

9th-12th Grade

**Blades (0-15 points)** \_\_\_\_\_

- What was the engineering process for blade design?
- Do the blades appear sturdy?
- Are blades shaped as Airfoils, Twisted, Flat?
- How did the team determine: pitch of blades, # of blades, length, material, etc?
- Was there a great deal of experimentation? Does the team have documentation?

**Drivetrain (0-15 points)** \_\_\_\_\_

- Direct drive, geared, or pulley system? Why did they choose the system they used?
- What materials did they use to construct drivetrain?
- What were the major challenges with the drivetrain?
- How did the team deal with the High Speed and Low Speed Tunnel? Did they anything different?

**Generator (0-10 points)** \_\_\_\_\_

- Do they have a KidWind Generator?
- Did they build their own generator and load system?
- Did they use some other kind of AC / DC Generator?
- Do they seem to understand the differences between AC/DC and loads?

**Innovation (0-10 points)** \_\_\_\_\_

- How creative were the students in the construction and materials used in their turbine?
- Did they try a vertical or horizontal axis? Why?
- Did the students use any CAD or 3D printing?
- Is their turbine design different than others? Is it creative while still functional?
- How many design iterations did they discuss?
- Did they construct their own generator? Do they understand how it works?

### **Independence (0-10 points) \_\_\_\_\_**

- Do you feel that the students did this work themselves?
- Do you feel that they applied concepts they learned?
- If they did any CAD work or 3D printing, is it clear they did the work and not a coach or parent?

### **Overall Appearance and Material Selection (0-10 points) \_\_\_\_\_**

- What types of materials were used to build the turbine? New? Recycled?
- Were students careful not to use any prefabricated kits?
- How much did their turbine change from regional competition?
- Does it look like students were precise in their turbine building? Is it a nice looking rig?

### **Type of Document and/or Presentation (0-10 points) \_\_\_\_\_**

- What kind of documents did the students share? Was it a short report, engineering notebook, video, poster?
- What is your overall feeling about the document or presentation?
- Is it interesting and organized?
- Was it creative? (It does not have to be; we are more interested in looking for evidence of a PROCESS of learning.)
- Is the statement thoughtful and does it show evidence of their work?

### **Depth, Complexity and Clarity (0-10 points) \_\_\_\_\_**

- Did the document show a progression of discovery?
- Did it provide evidence that students made changes based on their research and/or discoveries?

### **Delivery (prepared or improvised) (0-10 points) \_\_\_\_\_**

- Was the documentation and/or presentation neat and organized?
- Do you feel that the students practiced?
- Did all students take part in the discussion? Or did one student dominate?
- Do you feel like the students “knew their stuff” or were they just reading or making it up?

### **Total Points (0-100) \_\_\_\_\_**