Name: **Partner:**
Core:

DATA TABLE 1: Turbine Blades Description

EACH *group member must have their own data tables. Test and record 4 different blade arrangements or designs. You must make at least 4 different prototypes!*

Blade Material (What's it made from?)	**Blade Shape** (Draw the shape)	**Blade Number** (How many blades are on the hub?)	**Blade Pitch (degrees)** *Use a protractor* (Find the average and round to the nearest integer.)	**Blade Area (cm^2)** a.) Show your formula used or state if graph paper was used. b.) Round to the nearest integer.	**Total Blade Area (cm^2)** (Multiply the blade area by the total blade number.)	**Blade Mass (g)** (Use the triple beam balance)	**Total Blade Mass (g)** (Multiply the blade mass by the number)	**Millivolts (mV)** *-use multimeter* Round to the nearest integer.	**Milliamps (mA)** *-use multimeter* Round to the nearest integer.	**Milliwatts (mW)** *Calculate using the formula:* (mV)(mA) = mW Round to the nearest integer.
1										
2										
3										
4										

DATA TABLE 2: Turbine Blade RPM Analysis

Choose your best blade design and arrangement and analyze the rotations per minute. ***EACH*** *partner must do their own set of data recordings. *Go to Mr. Nicholson's subpage "Wind Power" for the tutorial on how to analyze the RPM. ** You can analyze without pulleys or gears connected.*

1st Frame Time **(seconds)** **Show 3 decimal places**	**2nd Frame Time** **(seconds)** **Show 3 decimal places**	**Time Difference** **(seconds)** ***(2nd Frame Time- 1st Frame Time)*** **Round to 3 decimal places**	**Angle** **(degrees)** **Round to the nearest integer**	**Rotation** $\frac{\textit{Angle}}{360^0}$ **Round to 2 decimal places**	**Rotations per Second** **(RPS)** $\frac{\textit{Rotation}}{\textit{Time difference}}$ **Round to 2 decimal places**	**Rotations per Minute** **(RPM)** $(RPS)\ (60\ \frac{s}{min})$ **Round to the nearest integer**

Average Rotations per Minute (RPM) =