Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**KidWind Design Challenge Student Datasheet**

Team Name: Turbine Name:

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Turbine Blade Measurements:**

Describe your blade design: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw your blade shape

Explain why you chose this shape: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Blade Measurements (in centimeters):

|  |  |  |
| --- | --- | --- |
| Length *Note: Use blade length as the radius in calculations below* | Width at Top  | Width at Bottom  |
|  |  |  |



|  |  |
| --- | --- |
| Number of Blades |  |
| Blade Pitch |  |
| Material(s) Used |  |
| Average Mass of Blades |  |

**Vocabulary:**

Define Voltage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain voltage in terms of your turbine: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Define Current: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain current in terms of your turbine: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Turbine Performance:**

Trial #1

|  |  |
| --- | --- |
| **Wind Speed** (meters per second)*If an anemometer is not available, use the wind speed estimator sheet* | m/s |
| **Turbine Rotor Swept Area** (centimeters squared)*Calculate using the formula Area=πr2* | cm2 |
| **Resistor Value** (ohms) *Note: If using resistor in KidWind kit, the value is 30 ohms* | Ω |
| **Turbine Voltage** (millivolts)*Reading from multimeter-the multimeter unit is millivolts (1V=1000mV)* | mV |
| **Turbine Current** (amperes/amps)*Reading from multimeter-the multimeter unit is milliamperes (1A-1000mA)* | mA |
| **Turbine Power** (milliwatts)*Calculate using the formula Power=voltage X current* | mW |
| **Turbine Efficiency Percentage***This field will autocalculate on the KidWind site* | % |

Trial #2

Describe the modifications made on your wind turbine.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  |  |
| --- | --- |
| **Wind Speed** (meters per second)*If an anemometer is not available, use the wind speed estimator sheet* | m/s |
| **Turbine Rotor Swept Area** (centimeters squared)*Calculate using the formula Area=πr2* | cm2 |
| **Resistor Value** (ohms) *Note: If using resistor in KidWind kit, the value is 30 ohms* | Ω |
| **Turbine Voltage** (millivolts)*Reading from multimeter-the multimeter unit is millivolts (1V=1000mV)* | mV |
| **Turbine Current** (amperes/amps)*Reading from multimeter-the multimeter unit is milliamperes (1A-1000mA)* | mA |
| **Turbine Power** (milliwatts)*Calculate using the formula Power=voltage X current* | mW |
| **Turbine Efficiency Percentage***This field will autocalculate on the KidWind site* | % |

Trial #3

Describe the modifications made on your wind turbine.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  |  |
| --- | --- |
| **Wind Speed** (meters per second)*If an anemometer is not available, use the wind speed estimator sheet* | m/s |
| **Turbine Rotor Swept Area** (centimeters squared)*Calculate using the formula Area=πr2* | cm2 |
| **Resistor Value** (ohms) *Note: If using resistor in KidWind kit, the value is 30 ohms* | Ω |
| **Turbine Voltage** (millivolts)*Reading from multimeter-the multimeter unit is millivolts (1V=1000mV)* | mV |
| **Turbine Current** (amperes/amps)*Reading from multimeter-the multimeter unit is milliamperes (1A-1000mA)* | mA |
| **Turbine Power** (milliwatts)*Calculate using the formula Power=voltage X current* | mW |
| **Turbine Efficiency Percentage***This field will autocalculate on the KidWind site* | % |