Wind Turbine

Name(s): _____ **Date:** _____

NGSS GOALS	 BRONZE	 SILVER	 GOLD	 PLATINUM
1. Student work related to this Crosscutting Concept: In this project, we investigated how much power is transferred through our wind turbine at different distances and with different blade designs.				
Energy and matter: Flows, cycles, and conservation: Tracking energy in and out of a system helps understand the system's possibilities and limitations.	• We predicted voltage and power for our wind turbine at a distance of 30 cm. • We measured voltage and power for our wind turbine at 30 cm. ☐	• We met Bronze. • We used our first experiment to make our predictions for 15 cm. • We completed our measurements for 15 cm. ☐	• We met Silver. • We used our observations from the distance experiments to make our predictions for the turbine with 3 blades. • We completed our 3 blade turbine experiment. ☐	• We met Gold. • We proposed a procedure for a new turbine power experiment that investigates other variables (such as fan angle or fan speed). ☐
2. Student work related to this Practice: In this project, we built a wind turbine to test our predictions about how different factors affect the power we produced from a fan.				
Developing and using models: Develop and use a model to predict and describe phenomena.	• We built our turbine complete with E Motor and wires to our Energy Meter. • We tested our turbine to make sure it moved smoothly. ☐	• We met Bronze. • We carefully placed our turbine the distance from the fan. • We tested the turbine to ensure it generated more than 2.0 Volts on our Energy Meter. ☐	• We met Silver. • We used our wind turbine model with care to test predictions and complete all investigations. • We zeroed our Energy Meter in between experiments. ☐	• We met Gold. • We used our models to help us explain how different variables affect our wind turbine's performance. ☐
3. Student work related to this Practice: In this project, we identified variables and explained how those variables affected our wind turbine's efficiency.				
Constructing explanations: Construct a scientific explanation based on valid and reliable evidence obtained from student's own experiments.	• Our explanation for how different variables affected the wind turbine's efficiency referred to what we discovered in our experiment. ☐	• We met Bronze. • We used numbers from our experiment to support our ideas. ☐	• We met Silver. • We explained how three different variables affect the wind turbine's efficiency. ☐	• We met Gold. • We shared our explanation and evidence with classmates. • We revised our explanation to make it more understandable. ☐
Notes:				