

Generating Electricity with Wind Worksheet

Rotor Design

Part A. List or draw and label specifications of the chosen rotor design.

Data Table A. Original Design

Trial	Voltage (V)	Milliamps (mA)	Power (mW)	Observations
Rotor Hub Facing Center of Fan				
Rotor Hub Above Center				

Part B. List all modification made or draw and label each change for the improved rotor design.

Data Table B. Modified Design

Rotor Position (Circle one)	Voltage (V)	Milliamps (mA)	Power (mW)	Observations
Center of Fan				
Above Center				

Post-Lab Questions and Calculations

1. Calculate the amount of power the improved rotor design generated in Part B and record in Data Table B above.

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- 2. Compare the power output of the original rotor to the modified rotor.
 - a. Did the rotor modifications result in greater power production?
 - b. Are you able to determine which modifications made a difference in the power output? Explain.

- 3. Traditionally a motor uses electric current to spin objects. In this laboratory activity the constructed rotor is connected to a motor but the motor is not attached to any source of electricity.
 - *a*. What makes the shaft of the motor spin?

b. As the shaft of the motor turns, electric current runs through the wires. What must be inside the motor for this to happen?

c. What is the motor actually functioning as in this activity?

- 4. Wind power provides less than 2% of the electricity in the United States, but may provide as much as 20% in the future.
 - a. List advantages of using wind power for electricity.
 - b. What are some reasons why wind is not being used as much as a resource to generate electricity?