

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

Date: \_\_\_\_\_

Section: \_\_\_\_\_

### Wind with Miller: Wind Turbine Simulator

Complete the following activities using the data you will collect from the wind turbine simulator.

#### Activity 1: When & How Quickly

Turbine	Minimum Speed (m/s)	Maximum Speed (m/s)
Bonus 1000 kW 54 m rotor		
Neg Micron 1000 kW 60 m rotor		
Nordex 1000 kW 54 m rotor		
Vestas 850 kW 52 m rotor		

**Summary:** Based on the data above, explain the impact that wind speed has on the operation of wind turbines.

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#### Activity 2: Wind Speed and Electricity Production

Turbine	Wind Speed	Electricity Generated (kW)
Bonus 1000 kW 54 m rotor		
Neg Micron 1000 kW 60 m rotor		
Nordex 1000 kW 54 m rotor		
Vestas 850 kW 52 m rotor		

**Summary:** Based on the data above, explain the impact that wind speed has on electricity generation.

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### Activity 3: Hub Height and Electricity Production

- Choose 1 wind turbine and record in box below



- Click on the “3” 
- Use the red arrow to adjust the hub height at 4 different locations.
- Record the amount of electricity produced at each different hub height.

Turbine	Hub Height (m)	Electricity Generated (kW)

**Summary:** Based on the data above, explain the impact that hub height has on electricity generation.

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### Activity 4: Wind Turbine Siting

- Choose 1 wind turbine and record in box below
- Use the red arrow to adjust the wind speed and record. Keep the speed the same throughout the activity.
- Go through each of the four roughness classes and record changes in electricity output.

Turbine	Roughness Class	Wind Speed (m/s)	Electricity Generated (kW)

**Summary:** Based on the data above, explain the impact that landscape has on electricity generation.

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