

## Answer Key for Producing Electricity with Wind

### EXPLANATION:

1. When you changed the wind speed. What happened? *The faster the wind speed the more electrical output. When the wind speed slowed down so did the electrical output.*
2. What happened when you moved the fan closer or farther away? *The closer the fan the higher the electrical output. This is because the wind was faster closer.*
3. Which blade design worked best? *The best should be long narrow blades, but it could vary.*
4. Did changing the pitch make a difference? yes Why do you think that? *Some angles are better at catching the wind.*
5. Looking at your picture you labeled of the wind turbine, explain, in a paragraph, how the wind moves the turbine and goes through the turbine to give you electricity.

*Answer should include wind blows the blades. The blades turn the low speed shaft which turns in the gearbox. Inside the gearbox turns the high speed shaft which turns the generator. The generator is between two stationary magnets and the turning produces electricity.*

### EXTENSION:

A wind turbine works opposite of a fan. Write a paragraph explaining this.  
Answer should include - *A fan uses electricity to turn the blades and causes wind. In a turbine wind causes the blades to move which turns the generator to produce electricity.*

Some wind turbines are different shapes, (look at the pictures below) will this make a difference in the output? Explain. *Yes, the size and shape of the blades make a difference. If they are thick there is more drag than if thin. Long blades can produce more energy. Three is the optimum number of blades.*

### EVALUATION:

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|------|---|
| 1. A | 6. Wind turns the blades that turn a generator, which produces electricity. |
| 2. B | 7. A  |
| 3. C | 8. C  |
| 4. C | 9. A  |
| 5. D | 10. A   |