

Wind Power Exploration

1. When air moves quickly, in form of wind, air particles which are in form of a _____, are also moving quickly. Motion means _____ energy, which can be captured by the _____ of the wind turbine.
2. When the turbine blades capture wind energy and start moving, they spin a shaft that leads from the hub of the rotor to a _____.
3. The generator turns the _____ energy into electricity.
4. Matter is composed of _____.
5. Metal has electrons that detach from the atoms easily. The loose electrons make it easy for electricity to flow through these materials, so they're known as electrical _____.
6. Therefore, electricity needs a conductor in order to move. There also has to be something to make the electricity flow from one point to another through the conductor. One way of getting electricity to move is called a _____.
7. How does a generator work? Explain it descriptively and visually.

Descriptive Explanation

Visual Explanation

9. What unit is Current measured in? _____
10. Define Voltage: _____

11. In the United States our outlets deliver how many volts? _____
12. To figure out the wattage of an appliance what two units can you multiply? _____

13. Imagine that you plug a toaster into a wall outlet at home. You measure the amount of current flowing from the wall outlet to the heater, and it comes out to 5 amps. What is the wattage for your toaster? What are the kilowatts for the toaster?

14. Now imagine that it is Thanksgiving morning, you have your entire family over and all they want to do is eat toast. You use that toaster for 2 hours straight. If your power company charges you 12 cents per kilowatt-hour, how much did using that toaster just cost you?

15. Nothing can move in life without some resistance, and the same goes for electricity. Resistance in electrical terms is measured in _____. There is even a law named after this called

16. _____ Law states that $I = V/R$. Where I stand for _____, V stands for _____ and R stands for _____.

17. In your own words, how would you define electricity? _____

18. There are two main type of wind turbines they are _____

19. In the space below, draw and label the parts of the Horizontal-axis wind turbine showing how they go together.

20. In the space below, draw and label the parts of the Vertical-axis wind turbine showing how they go together.