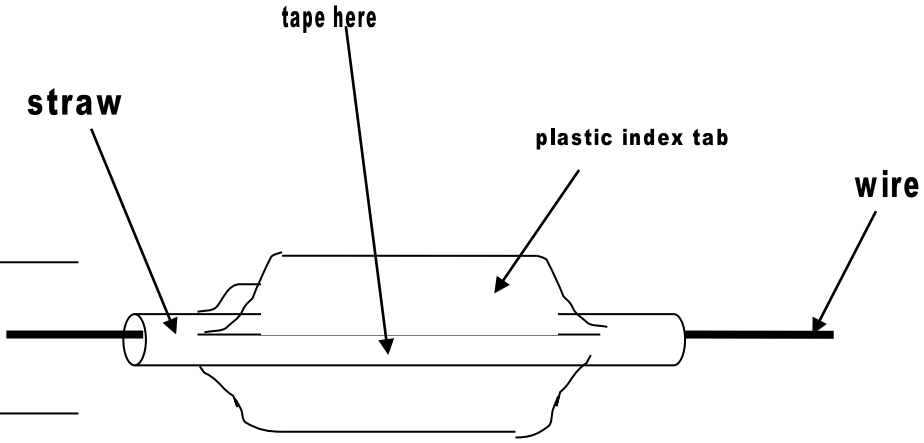
INVESTIGATING THE GENERATION OF ELECTRICITY

Name_____ Date_____ Hour_____

Part 1 Make a turbine

Construct a turbine using plastic index tabs, a straw, and a piece of firm wire.



1. Blow on the turbine fast… what happens?

_____

2. Blow on the turbine slow… what happens?

_____

3. What is the name of the device that uses the wind and a turbine to create spinning mechanical energy?

_____

4. Describe how air can be used to turn a turbine

_____

5. What problems might windmills have?

_____

_____

6. Fill a plastic juice or pop bottle with water. Hold the turbine over a sink. Use the bottle to pour water on the turbine. Try varying the height of the water. What happened?

When the water was low…

_____

When the water was high…

_____

7. Describe how water can be used to turn a turbine

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_____

8. How can fossil fuels be used to turn a turbine? (include the words **fossil fuel**, **burn**, **steam**, and **turbine blades**) Use what you learned from the classroom demonstration to answer this.

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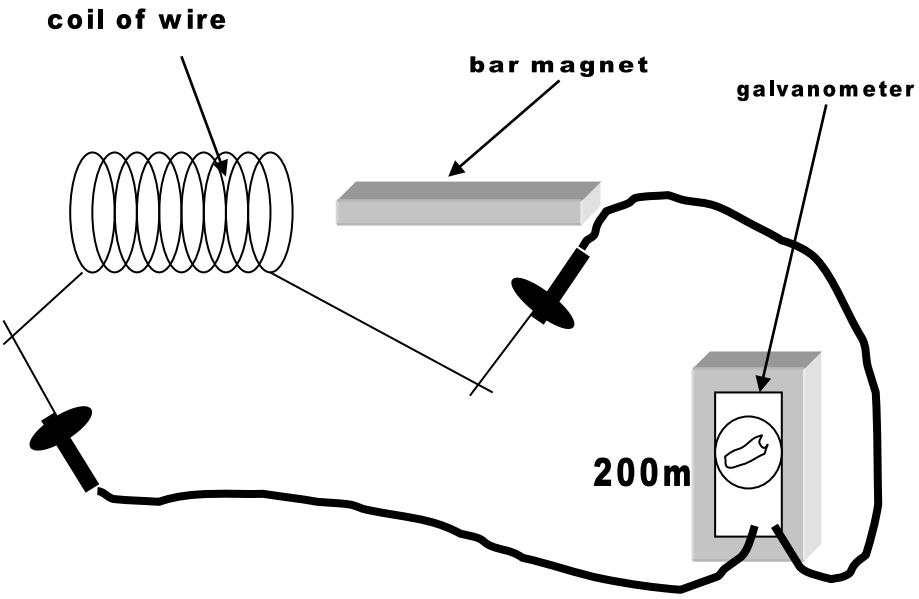
Part 2 Can a coil of wire and a magnet generate electricity?

Get a long piece of wire (3 feet) and a short piece of wire (1 foot). Make two coils out of the wire by wrapping the wire around a small cylinder. Remove the tube from the coil. Now take one coil and attach each end of the wire to the galvanometer. A galvanometer or measures small electric currents.



9. With the short wire attached to the galvanometer, take a reading and write it below in mA. (no magnet)

_____

10. Now insert and remove a bar magnet into the coil wire 3 times. Record your readings below in mA.

1 2 3

_____

11. Now move the magnet fast several times and slow several times. How does this change the readings?

When the magnet moves fast…

_____

When the magnet moves slow…

_____

12. Now attach the longer wire which made more coils. Insert and remove a bar magnet into the coil 3 times. Record your readings below.

1 2 3

_____

13. How are the readings from many coils different from the readings from few coils?

_____

14. Transformers are used to step up (increase) and step down (decrease) voltage during the transmission and distribution of electricity. How do you think transformers might step up and step down voltage?

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