

Faraday's Electromagnetic Lab

Name: _____ Group: _____

Open the PhET (phet.colorado.edu) simulation **Faraday's Electromagnetic Lab**. Investigate the simulation and use the simulation to answer the following questions.

1. Draw the shape of the magnetic field around a bar magnet.



2. Why does/What makes a compass needle point North?

3. Make a list of ways to make a light bulb light.

4. How can you make the light bulb brighter?

5. Compare tab 1 to tab 3 . What are the same and what are different between a magnet and an electromagnet?

6. Compare Tab 2 and tab 4. What are the same and what is different between a Pickup Coil and a Transformer?

7. Make a Venn diagram to show the similarities and differences between a bar magnet and an electromagnet.

8. How does using AC current in an electromagnet affect a compass?

9. The phenomenon that you have seen (lighting a light bulb with a magnet) is called **induction**. Describe, in a way a 5th grader would understand, what **induction** means, include step by step instructions of how to accomplish it.

10. Design an experiment that you can do with the simulation that will allow you to investigate how a variable, of your choosing, will affect the amount of induction.

a. The variable that I will investigate is...

b. How will you measure the amount of induction?

c. What do you predict will be the result of changing your variable on induction?

d. Write a short procedure.

e. Make a data table to record your information

f. Conclusion

11. Describe how a generator produces electricity from flowing water.