Faraday's Electromagnetic Lab

Predictions (these will not be graded for correctness – only effort)
1. A bar magnet is shown below. At points A, B, C and D label the direction a compass would point.

2. Compare and contrast a bar magnet to an electromagnet.

3. What do you think you would have to do to make a light bulb light using a magnet? Use words and pictures in your explanation.

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. Investigate tabs 3 and 4 (electromagnet and transformer). Make a Venn diagram to show the similarities and differences between a bar magnet and an electromagnet.
6. How does using AC current in an electromagnet affect a compass?

7. The phenomenon that you have seen (lighting a light bulb with a magnet) is called induction. Describe, in your own words, what induction means, include step by step instructions of how to accomplish it.

8. Design an experiment 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

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