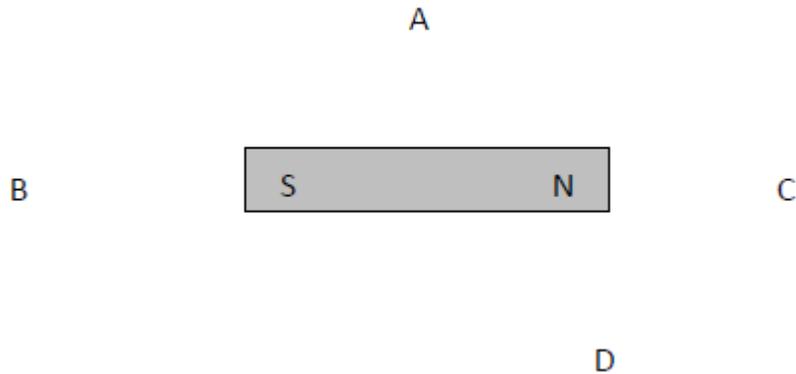


## Faraday's Electromagnetic Lab

Name: \_\_\_\_\_ Group: \_\_\_\_\_

### 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](http://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.