Lab01B Observations and discussion worksheet (Revised for Spring 2017)

This is a guide for your completion of lab 01B which you may use to form your discussion for the report. This is largely a qualitative lab so a lot of discussion is appropriate in your report.

Experiment 0 is to transfer the definition of negative charge from rubber rods and cats fur to straws and wool. Essentially what is required is to verify that the same charge that forms on a rubber rod when a rubber rod is rubbed with cats fur is the same as when a straw is rubbed with wool. After this, when the lab calls for a rubber rod, use the straw and when the lab calls for cats fur, use wool. **In fact, you may continue to use rubber rods since I now have enough rubber rods.**

Summary: (use this for the rest of the lab after you transfer the definition)
[charged rubber rod=straw charged with wool. Charged glass rod = glass rod charged with acetate]

Experiment 1

1A: Yes or No: Touching the charged rubber rod to the electroscope ball makes the leaves separate.

1B: Yes or No: Touching the charged glass rod to the electroscope ball makes the leaves charged in 1A separate more or separate less.

1C: Interpret your results from 1B in terms of total amount of charge on the electroscope.

1D: Can you conclude from your results that there are two types of charges? (why)

1E: Describe your experiment which will test for the sign of rubber on acetate and glass on wool.

1F: What did you determine for the following:
Sign of glass rod charge when rubbed with cat's fur [replace with wool] is :_____
Sign of rubber rod when rubber rod when rubbed with acetate is: _____

Experiment 2:

2A: Below, describe the experiment that will test the sign of the charge deposited on a balloon when rubbed with cat's fur [replace with wool].

2B: When charged as described in the lab, do the balloons attract or repel each other?

2C: Is the sign of the charge on the balloons the same or different.

2D: What can you conclude about the interaction between two bodies when the charge on both bodies is the same as in this case?

2E: What happens when the negatively charged rubber rod is brought close to the charged balloons?

2F: What is the sign of the charge on the balloons (positive or negative)?

Experiment 3

3A: Explain how, after charging the electroscope as described by induction, you can test for the sign of the charge on the electroscope.

3B: According to your test above, what is the sign of the charge on the electroscope and why.

3C: Describe the steps required to place a negative charge on the electroscope by induction.

3D: Describe how you determined the sign of the charge on the metal plate of the electrophorus.

3E: Is an uncharged balloon attracted or repelled from a positive charged object? (Discuss in terms of your correctly performed experiment). Explain.

3F: Is an uncharged balloon attracted or repelled from a negatively charged object? (Discuss in terms of your correctly performed experiment).Explain.

3G: Is a small piece of uncharged metal attracted, repelled or not from a charged object? (Discuss again in terms of your correctly designed and performed experiment).
3G: Explain (in your words) how the electrostatic chime works.