

**Coulomb's Law**  
**Counting Electrons in a Charged Balloon**

**Introduction:** *In a paragraph or two: Explain what factors determine the electrical force between charged objects. Discuss the two mathematical relationships that exist between the electrical force and the factors you discussed. Discuss how you can determine the number of electrons in a body by knowing its charge.*

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**Purpose:** To design an experiment to determine the number of electrons in two negatively charged balloons hanging from a thread.

**Materials:** Two balloons, fur, thread

**Procedure:**

*This is a numbered, step-by-step, explanation of what you did in lab. Include a clear description that will enable someone to replicate your experiment. Write in the past tense and avoid any description of startup procedures. (i.e. I collected my materials)*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

4. \_\_\_\_\_

### Free Body Diagram

1. With a ruler and protractor, draw a free body diagram of your two balloons.
2. Make sure all angles in your drawing match the angles of your charged balloons setup.
3. Label all angles AND forces in your picture.
4. Use a coin to draw the balloons

Support

A. Calculation of the charge on each balloon

B. Calculation of the number of electrons in each balloon.