

Name _____
AP Physics
Period _____

Date _____
Lab Activity #11 (30 pts)
Mrs. Nadworny

Partners: _____

Due Date _____

Electrostatic Force

NO Lab Write-Up Required
must be neatly written in pencil

Purpose

- To determine the electric charge placed on an object.

Materials

(3)

- Styrofoam spheres
- fur / wool
- string

Procedure

1. Connect the two Styrofoam spheres to opposite ends of a length of string.
2. Hang the string by its middle from a ring stand.
3. Charge the spheres with the fur or wool so that the spheres repel.
4. Determine what measurements need to be made, and appropriate ways to make those measurements, so that the charge on each sphere can be calculated.

Data Collection

(10)

- Include a rough sketch of the set-up, labeled with appropriate measurable variables. Create a neat table to display data measurements including units and uncertainties.

Data Processing

1. Draw a free-body diagram for one sphere, write the appropriate net force equations and solve them for the charge on each sphere. (10)

Derive a single expression for charge before substituting data values.

2. Report your answer in units of coulombs (C) and also in elementary charge units (e). (5)

3. State any simplifying assumptions you made. (5)