Name:_____ Date:_____

Mr. Croom's Physics Lab 20-2

Parallel Plate Capacitors

Objective: To test how voltage, capacitance, area, and distance are related in capacitors.

Theory: $C = \frac{\kappa\varepsilon_0 A}{d}$ which is equal to $C = \frac{q}{V}$

Capacitance vs Distance

1. Connect the capacitance meter on the Multimeter to the parallel plate capacitor
2. Measure and record the capacitance of the parallel plate capacitor when the plates are 1cm, 2cm, 3cm, 4cm, 5cm, 6cm, 8cm, and 10cm, apart.
3. Graph capacitance vs distance and explain what the relationship between capacitance and distance.

Capacitance vs Area

1. This section requires 2 lab groups to work together.
2. To change the area, we will place two parallel plate capacitors side by side.
3. Wire each of them to the capacitance meter
4. Test and record the capacitance at when both capacitors are at 1cm, 2cm, 3cm, 4cm, 5cm, 6cm, 8cm, and 10cm, apart.
4. Compare the results with the results in the previous lab.
5. What caused the area to change?
6. How did the capacitance compare between the first part of the experiment (Capacitance and Distance) and the second experiment (Capacitance and Area)?

Capacitance vs Charge and Capacitance vs Voltage

1. To test these items you must use an electrometer or Faraday's Pail. If you have these items use Lab 20-3 Parallel Plate Capacitor (Pasco)