Electric Force Investigation
To conduct your investigation, use the "Coulomb's Law Interactive" on The Physics Classroom--link found on www.mrbryant.net.

Target #1: I can analyze data to make a claim about the mathematical relationship between the <u>charge of one object</u> and the <u>strength of electric force</u> between two charges.

1. Prediction: How do you think these two quantities are related?
   (The two "quantities" are underlined above.)

2. Identify which quantity you will manipulate and which quantity will respond. Also identify any quantities to control.

   Manipulated Quantity:

   Responding Quantity:

   Controlled Quantities:

3. Please note that you are able to move the charges and the ruler on the simulation.   6 to 10 data points should be sufficient. Collect and organize data in the space below:

4. Graph the data using LoggerPro. Follow instructions on "Graphing Data in Science."

5. Analyze the data. Determine the mathematical relationship that best describes your data and plot a curve of best fit onto your graph. Then, print the graph and attach it.

6. Make a claim about the **mathematical relationship** between the charge of one object and the strength of electric force between two objects.

7. How does your data support your claim? Be as <u>specific</u> as possible and refer to the definition of the mathematical relationship that you choose. (If you need extra space, write on a separate piece of paper or on the back of your graph.)

Target #2: I can analyze data to make a claim about the mathematical relationship between the <u>distance</u> separating two charges and the <u>strength of electric force</u> between the charges.

1. Prediction: How do you think these two quantities are related?
   (The two "quantities" are underlined above.)

2. Identify which quantity you will manipulate and which quantity will respond. Also identify any quantities to control.

   Manipulated Quantity:

   Responding Quantity:

   Controlled Quantities:

3. Please note that you are able to move the charges and the ruler on the simulation. 6 to 10 data points should be sufficient. Collect and organize data in the space below:

4. Graph the data using LoggerPro. Follow instructions on "Graphing Data in Science."

5. Analyze the data. Determine the mathematical relationship that best describes your data and plot a line of best fit onto your graph. Then, print the graph and attach it.

6. Make a claim about the **mathematical relationship** between the distance separating two objects and the strength of electric force between the objects.

7. Using your data and/or graph, argue in favor of your claim. Be as <u>specific</u> as possible and refer to the definition of the mathematical relationship that you choose.