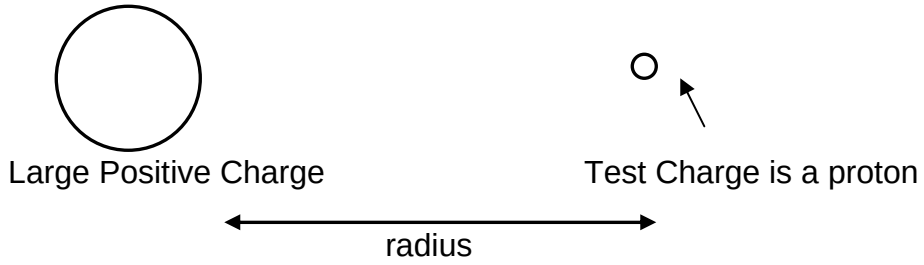
Graphing Electric Field Strength Activity

Electric Field Strength (N/C)	Radius (m)
7.80×10^3	0.5
2.00×10^3	1.0
0.90×10^3	1.5
0.60×10^3	2.0
0.50×10^3	2.5
0.30×10^3	3.0
0.26×10^3	3.5
0.20×10^3	4.0
0.10×10^3	4.5

That Data above reflects Electric Field strength measurements at specific radii as a test charge is moved at varying distances from a large positive charge as shown below.



1) Using the graph paper included with this lesson, graph Electric field Strength vs. Radius.
2) Label the x and y axes. Plot data points and best fit curve through your points.
3) Give the graph a title. USE A PENCIL FOR THE GRAPH.

Questions:

1) What happens to the Electric Field Strength as the positive test charge is moved further away from the large positive charge?

2) Explain how this can be similar to gravitational field strength.

3) What type of mathematical relationship exists between Electric Field Strength and distance separating charges?

4)

(a) Calculate the force on the proton at a distance of 1.5 m from the large positive charge. SHOWE ALL WORK BELOW INCLUDING EQUATIONS, SUBSTITUTION, AND INCLUSION OF UNITS.

(b) Calculate the force on the proton at a distance of 3.5 m from the large positive charge. SHOWE ALL WORK BELOW INCLUDING EQUATIONS, SUBSTITUTION, AND INCLUSION OF UNITS.

(c) Write a statement comparing Electric Field Strength, Force on a charge and distance separating charges.