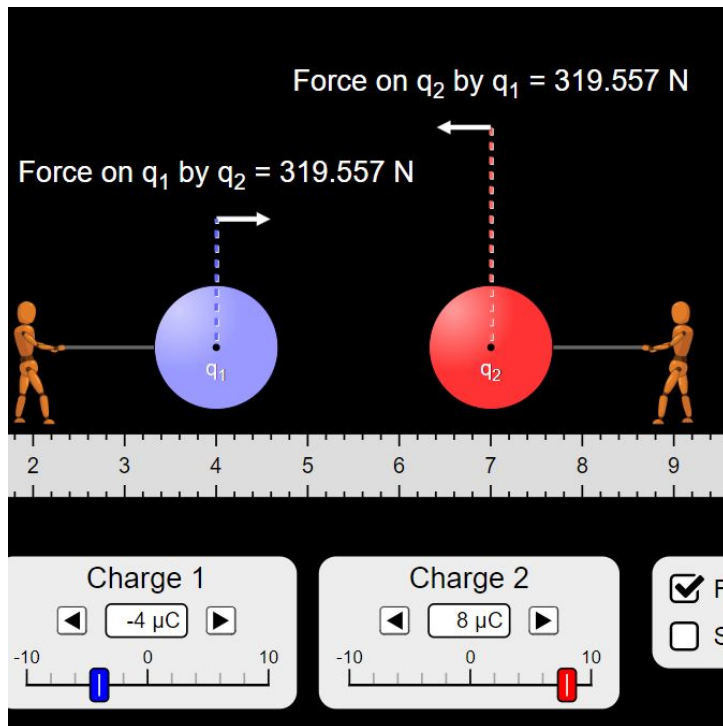# Coulomb's Law Lab

Go to the following site:

https://phet.colorado.edu/sims/html/coulombs-law/latest/coulombs-law_en.html

Set up the app as shown below.

1.)   Use Coulomb's Law to determine the force of attraction between the two charges. How well does your answer compare? If it compares poorly go back and figure out the problem.

2.)   As shown, the two charges are 3 cm apart. What will happen to this force if the distance between the charges is doubled? Use proportional reasoning to find the answer and then check by moving the charges.

3.)   As shown, the two charges are 3 cm apart. What will happen to this force if the distance between the charges is cut in half? Use proportional reasoning to find the answer and then check by moving the charges.

4.)   As shown the two charges are 3 cm apart. What will happen to this force if the distance between the charges is doubled and the -4µC is cut in half ? Use proportional reasoning to find the answer and then check by changing and moving the charges.

Now change the app to the atomic scale setting. Remember, e = 1.6 x 10^{-19} C, 1 pm (picometer) = 10^{-12} m.

5.)   Set up one charge with q = -2e and the other with q = +4e and place them 20 pm apart. Determine the force between the charges using Coulomb's Law and compare to the answer given. How'd you do?

6.)   Use the above problem to create a proportional thinking problem like problems 2-4. Give it a try and test your results. Challenge yourself and be creative.