Phet Coulomb's Law for Chemistry Name  **Key .**

1. Go to Phet: Physics>Coulomb's Law or enter or click on this link:<http://bit.ly/2I6VMDY>.
2. Click on the play arrow and then select the atomic model.
3. Some general notes:
   1. Pay attention to the direction of the arrows at the top of the dashed lines and the values of the q force. Q represents the charged particle. If there is no arrow the two particles are not being affected by each other.
   2. Change the value of the charge by scrolling across the bottom or clicking on the arrows. A proton would have a charge of +1 e. An electron would have a charge of -1e. e= -1.602 x 10-19 coulomb, hence the connection to the law’s name.
   3. Change the distance by moving the people along the ruler.
   4. The body stance of the people will change based on whether they push or pull.

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| Charge q1  (e) | Location q1  (pm) | Charge q2  (e) | Location q2  (pm) | Force  (on q1 by q2)  (N) | Force  (on q2 by q1)  (N) | Attracts (person pulls) or repels  (person pushes) |
| 1 | 15 | 1 | 85 | 1.44 x 10-7 | 1.44 x 10-7 | repels |
| 1 | 15 | -1 | 85 | 1.44 x 10-7 | 1.44 x 10-7 | attracts |
| 1 | 15 | 3 | 85 | 4.33 x 10-7 | 4.33 x 10-7 | repels |
| 1 | 15 | -3 | 85 | 4.33 x 10-7 | 4.33 x 10-7 | attracts |
| 1 | 30 | 1 | 85 | 3.69 x 10-7 | 3.69 x 10-7 | repels |
| 1 | 30 | -3 | 70 | 5.72 x 10-6 | 5.72 x 10-6 | attracts |

1. The two factors that affect the magnitude of the force are magnitude/size of the charge and the distance between the particles
2. Circle one of the underlined terms.
   1. The size/magnitude of the charge is \*directly\* or inversely proportional to the force.
   2. The distance between the charges is directly or \*inversely\* proportional to the force.
3. Summarize how the sign of the charge affects the direction of the force (attraction or repulsion) in two sentences or more. Opposite signs attract. Like charges repel. (answers may vary).
4. Summarize Coulomb’s Law in a sentence.The force of attraction or repulsion increases when the value of one of the charge increases and the force increases when the distance between the two particles is decreased. (answers may vary).