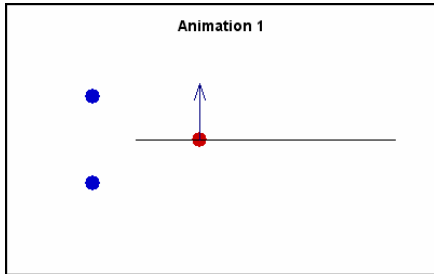


## Worksheet Exploration 22.4: Dipole Symmetry



Each animation shows a positive charge (red) along with two unknown charges (blue). The electrical force on the positive charge is represented with a force vector. You can drag the red charge along a portion of the x axis (**position is given in meters and force is given in (newtons / k), where k is the constant in Coulomb's law**).

- In which animation are the two unknown charges a positive and negative charge of equal magnitude?
- Qualitatively speaking, what charge configuration would produce the results in the other two animations?
  - Sketch each of the other configurations.
- For the animation with a positive and a negative charge of equal magnitude, what is the value of the magnitude of the two blue charges if the red charge is 2.5 Coulombs?
  - You will need to measure the force on the test charge at a specific location.

$$F = \underline{\hspace{2cm}} \quad x = \underline{\hspace{2cm}} \quad y = \underline{\hspace{2cm}}$$