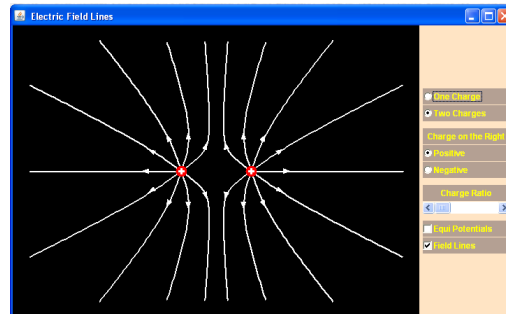


Name _____
Honors Physics
Period _____

Date _____
Electrostatics WS #4H
Mrs. Nadworny

Electric Fields

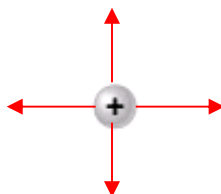
1. Go to <http://surendranath.org/GPA/Menu.php>. From the drop down *Applet Menu* (☰) in the upper left-hand corner choose *Electricity* and then *Electric Field*. A new tab will open and you will be directed there.



2. Click on *One charge* to see the electric field around a single charge. Is this single charge positive or negative?

Positive

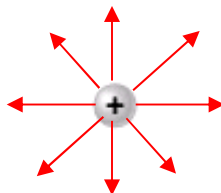
3. Sketch this field on the diagram below. Pay careful attention to the direction of the arrows.



4. Use the slider bar to increase the *Magnitude of charge*. What happens to the electric field as the magnitude of the charge increases?

There are more arrows as the charge increases.

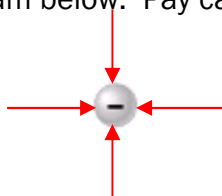
5. Sketch the electric field around this charge with the slider bar at maximum magnitude of charge.



6. Slide the bar back down to minimum magnitude of charge. Click on the button to change the charge to a *Negative* charge. Click back and forth between the positive and the negative charge. Notice the difference in the field lines. What is the difference in the field lines between a positive and a negative charge?

The arrows point away from a positive and toward a negative.

7. Sketch this field on the diagram below. Pay careful attention to the direction of the arrows.



Continued on next page

8. Make a general conclusion about the direction of the arrows of the electric field relative to a positive charge. (HINT: Do the arrows point towards the positive charge or away from it?)

The electric field points away from the positive charge.

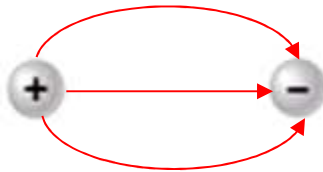
9. Make a general conclusion about the direction of the arrows of the electric field relative to a negative charge. (HINT: Do the arrows point towards the negative charge or away from it?)

The electric field points toward a negative charge.

10. Click on *Two charges* and set the sign of the *Charge on the Right* to negative. Are the two charges the same sign or opposite signs?

The charges have opposite signs.

11. Sketch the resulting electric field for these two charges on the diagram below.



12. Summarize the direction of the electric field – do the arrows point from positive to negative or from negative to positive?

The arrows point from positive to negative.

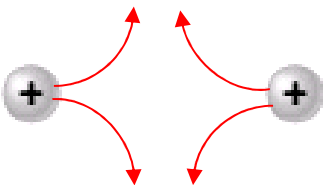
13. Increase the *Charge ratio* and watch what happens to the electric field. How can you tell where the field is the strongest?

The field is strongest where they are closest together.

14. Do the field lines ever cross or touch each other?

The field lines never cross or touch.

15. Move the slider bar back to minimum charge ratio. Click to make the *Charge on the Right* positive. Sketch the resulting electric field pattern on the diagram below.



16. Use what you have learned to complete the following electric field diagram for two equal negative charges. Pay careful attention to the direction of the arrows.

