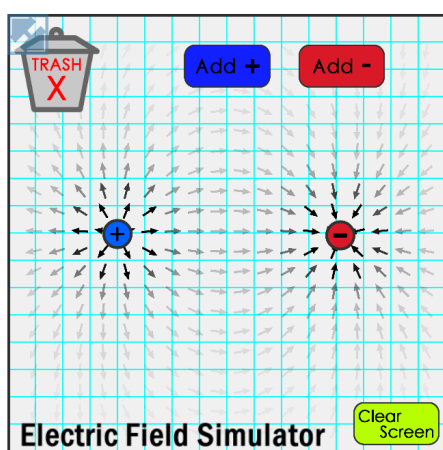
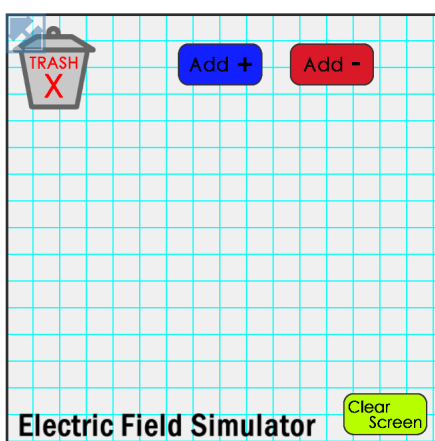


We are going to explore the Electric Field created by Electric Charge. We will use a simple interactive to help us in this exploration. Please open the link below.

<https://www.physicsclassroom.com/Physics-Interactives/Static-Electricity/Electric-Field-Lines/Electric-Field-Lines-Interactive>

You will see the simple interactive that displays the direction, but unfortunately not the magnitudes, of the electric field due to charges that the user creates and places.

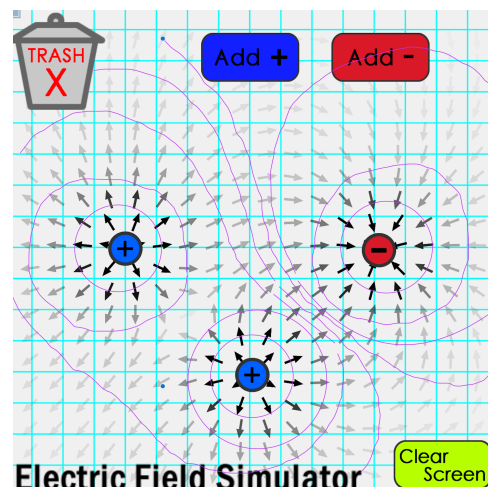
Here is a screen shot of the interactive in base mode and then after two charges have been created and placed. {Grab the little arrowhead in the lower righthand corner to drag to maximum width without going full screen - full screen is OK if you can still navigate screen grabbing via keyboard commands.}



Procedures

For each of the below configurations you will (i) place the charges on the interactive per the configuration (ii) perform a screen grab of the results (iii) then draw equipotential lines on top of the vector field. Equipotential lines are lines that are perpendicular to the electric field vectors. the lines must pass through the middle of the vectors, perpendicularly, and then head in the direction that the line dictates. Finally do a write-up on the observations you see and submit.

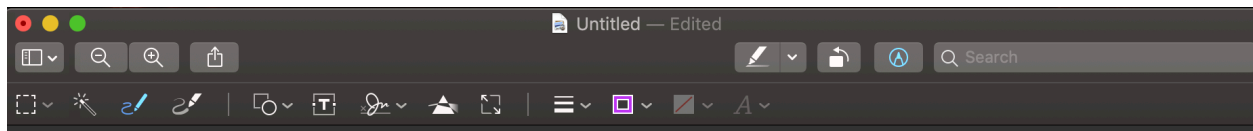
Here is an example:



We will place the charges in locations described as though the grid is a Cartesian coordinate system with the origin in the lower left hand corner (0,0)

1. Dipole Field: One positive (+) charge at (5, 8) and one (-) at (12, 8)
2. Like a dipole field but make both be (+) charges
3. Quadrapole Field: (+) at (4, 5) , (+) at (12, 10) , (-) at (4, 10) and a (-) at (12, 5)
4. Parallel-Plate capacitor: (-) charges at each grid point starting from (4, 5) to (12, 5) and (+) charges at each grid point starting from (4, 10) to (12, 10)
5. A configuration of your choice.

PS: I have a MacBook Pro and I used 'Screenshot', with the save option set to preview, and then in Preview I clicked on the pentip icon to show the drawing tools and I selected the draw icon:



Have fun!