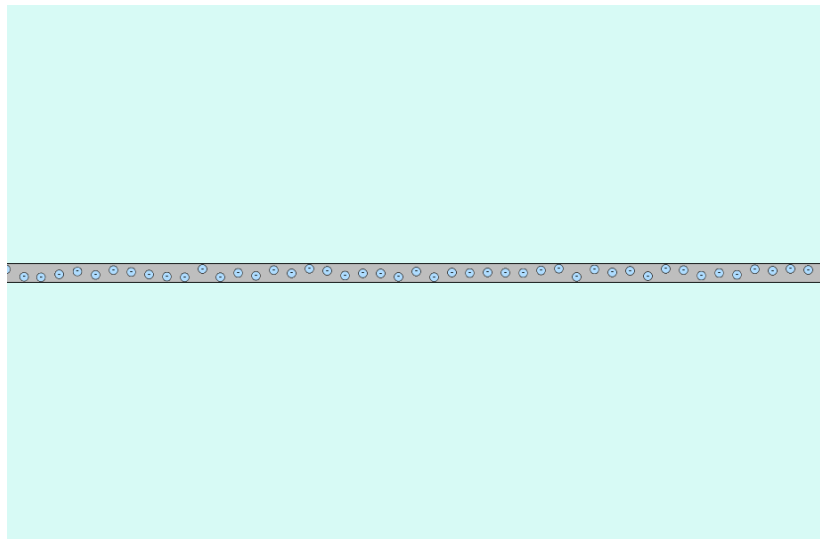


Force on Charge Moving Near a Wire

In this problem you are trying to determine the strength and direction of a magnetic field at a known distance from the wire so that you can then find the force on a charge passing by that spot.

Step 1: In the picture below draw the direction and magnitude of the current flow. In the program you are seeing the movement of electrons through the wire. If your teacher works with conventional current, make sure your current arrows point in the opposite way of the electron flow. Also label the distance from the center of the wire to the center of the magnetic field sensor. Draw in the charge and show its velocity and the magnitude of its charge.



Step 2: Using the current and the distance from the center of the wire to the center of the charge, find the strength of the magnetic field. Show your work. Also determine the direction of the field at that spot.

Step 3: Using the magnetic field you just calculated, find the force on the charge at the moment pictured. Determine both the magnitude and direction of this force. Enter all your answers into the program to see if you did everything correctly.