Charge Flow in Metal – The "Drude Model" Name _____
Physics 1 2 3 4 5 6 7 8

www.simbucket.com -> Go to the sims -> "Drude Model Conduction"

Part I – No Extra Electrons

1. Let the simulation run for a little while. What do you notice about the motion of the electrons?

2. Tap the "Low Temp" button. What do you notice about the motion of the electrons now?

Part II – Electrons Added to the Right Side

1. Tap the "Add Electrons" button. You should notice that the right side of the metal now has lots of charges.
   a. What direction does the electric field point? _____ Why?

   b. What direction are the electrons drifting? _____ Why?

2. Add as many charges as you can and switch back and forth between "High Temp" and "Low Temp".
   a. When the metal is at a high temperature, electrons flow (slower / faster) than they do when the metal is at a low temperature. Why is this?

3. When electrons are no longer moving, what is true about each of the following?
   a. Electric field:

   b. The number of electrons on each side:

4. Why do electrons eventually stop flowing?