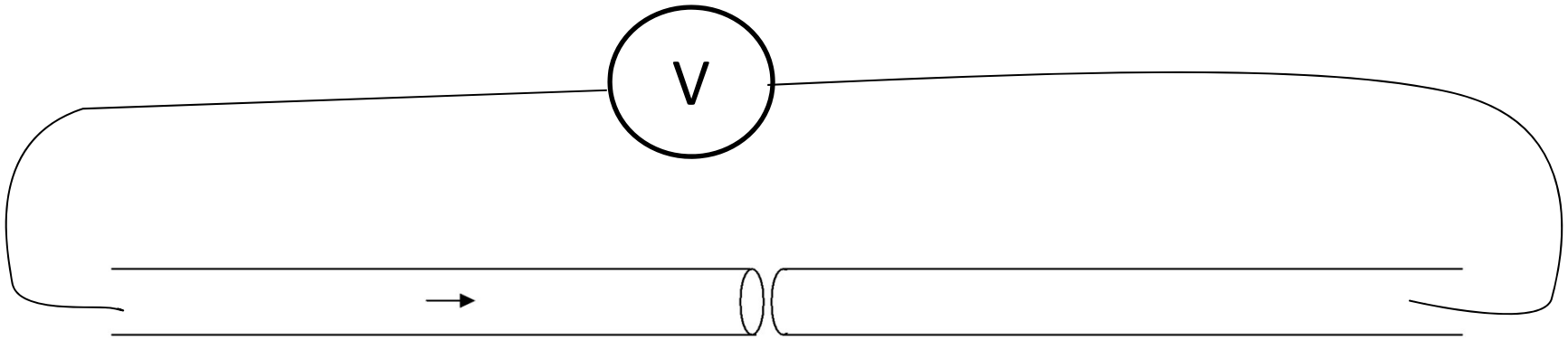
proper computer use
complaints about distracting

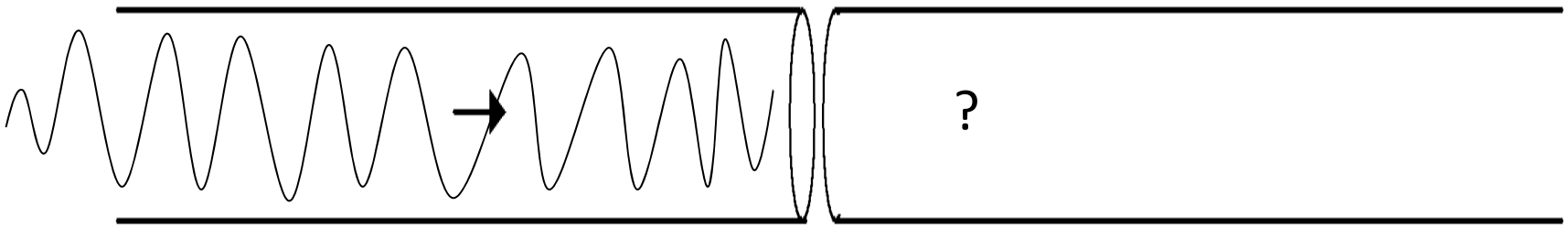


Long wire with gap/crack What is the current?

How would you go about figuring out?
(write suggestions on board)

Resistance-- what is resistance of gap?
always infinite?
bigger than for wire?

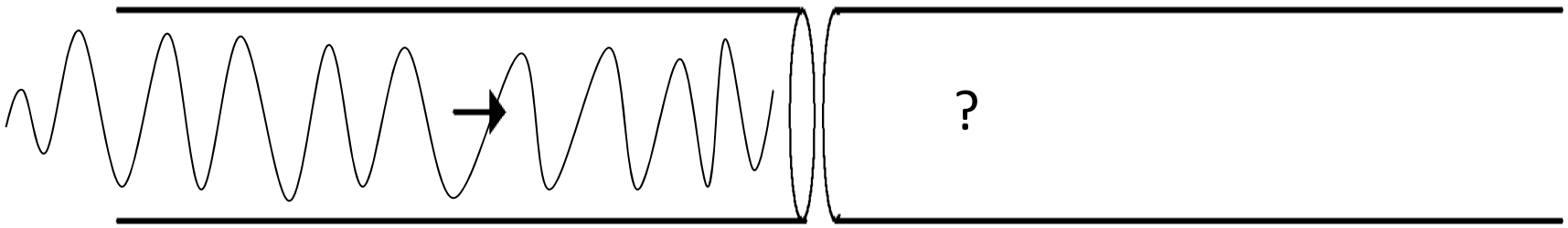
so first thing to do, assume only resistance of gap matters, calculate current across gap, given voltage difference.
How to figure out how electrons go across gap?



Find $\psi(x,t)$ different places. left side, gap, right side.
From ψ can figure out what electron is doing, if can cross gap and what properties are on each side.

How to find $\psi(x,t)$?

a. impossible to find, have to measure somehow
b. ask Louis
c. run phet sim and see what it looks like
d. calculate using Schrodinger equation



Use Schrodinger equation to find $\psi(x,t)$ different places. left side, gap, right side. From ψ can figure out what electron is doing, if can cross gap and what properties are on each side, what current will be vs. voltage.

Today's exercise-- do first ¾ of this.

Will first do without any voltage difference, just imagine very long wave packet coming in from left hitting barrier.

Very long wire, spacing between k levels VERY small.

$$E = n^2 \frac{\pi^2 \hbar^2}{2mL^2} = n^2 E_1$$

L very large, so E_2-E_1 tiny, can assume any energy, any k is ok = free space solutions

One solution handed in per group. Lots to get through so try to focus efficiently.

You will get in big mess if try to split up parts and not work through in sequence, since they build on and connect back with each other.