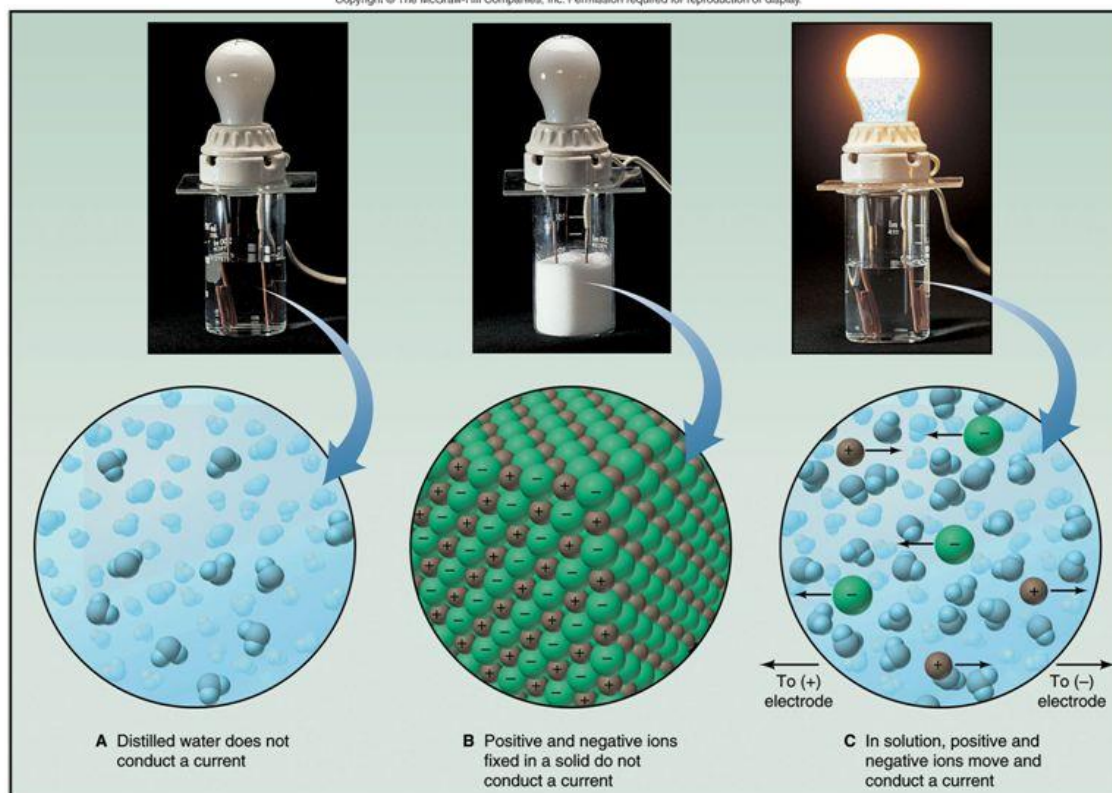


[8.2]

Conductivity of Solutions

Figure 4.1 Electrical conductivity of ionic solutions



Conductivity of Aqueous Solutions

- A solution which conducts electricity is called an **electrolyte solution**.
- To conduct electricity a solution **there must be a flow of electrical charges (or ions)**.
- Today, will be able to tell if there is a flow of electrons by:

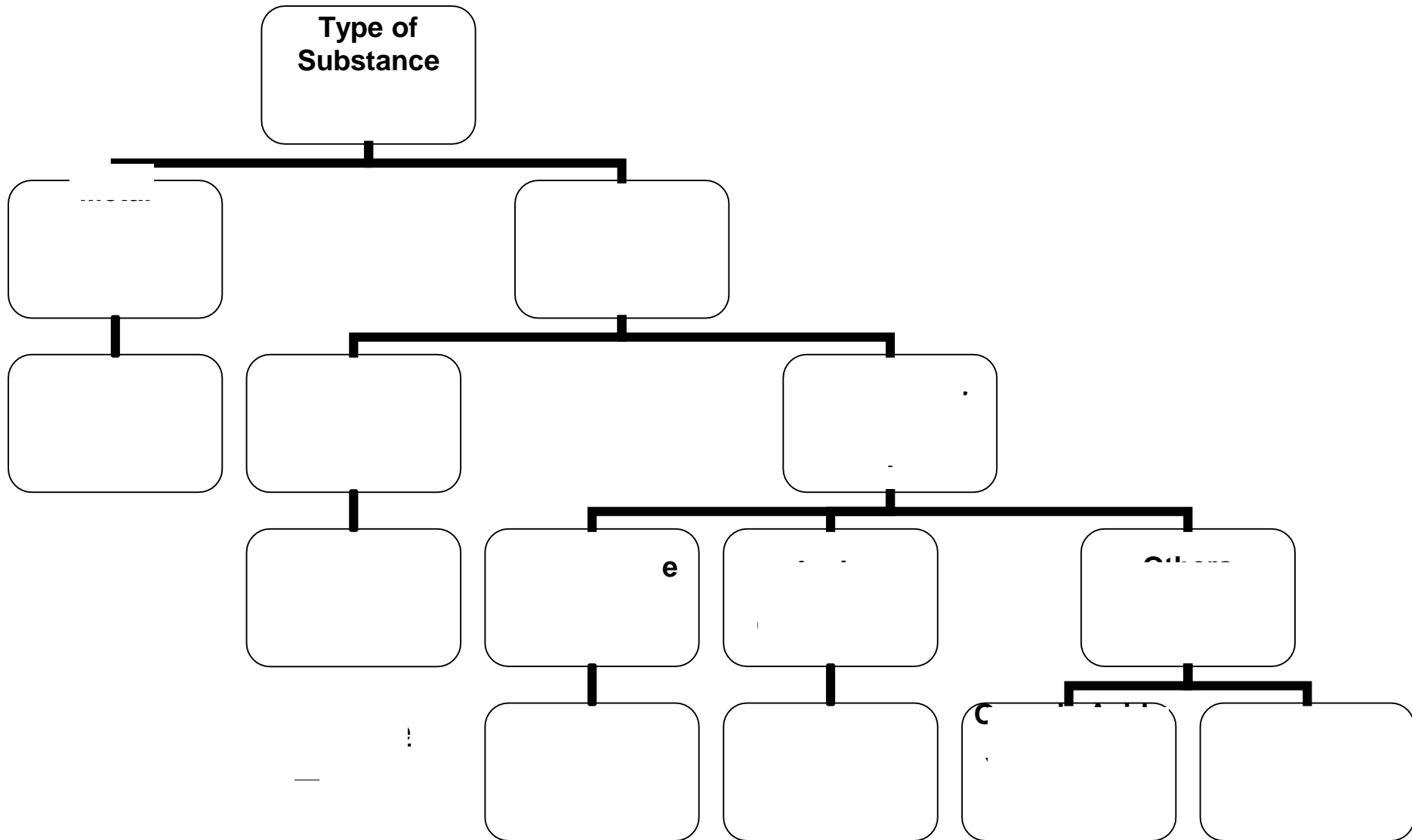
1) Through a current that uses a light bulb



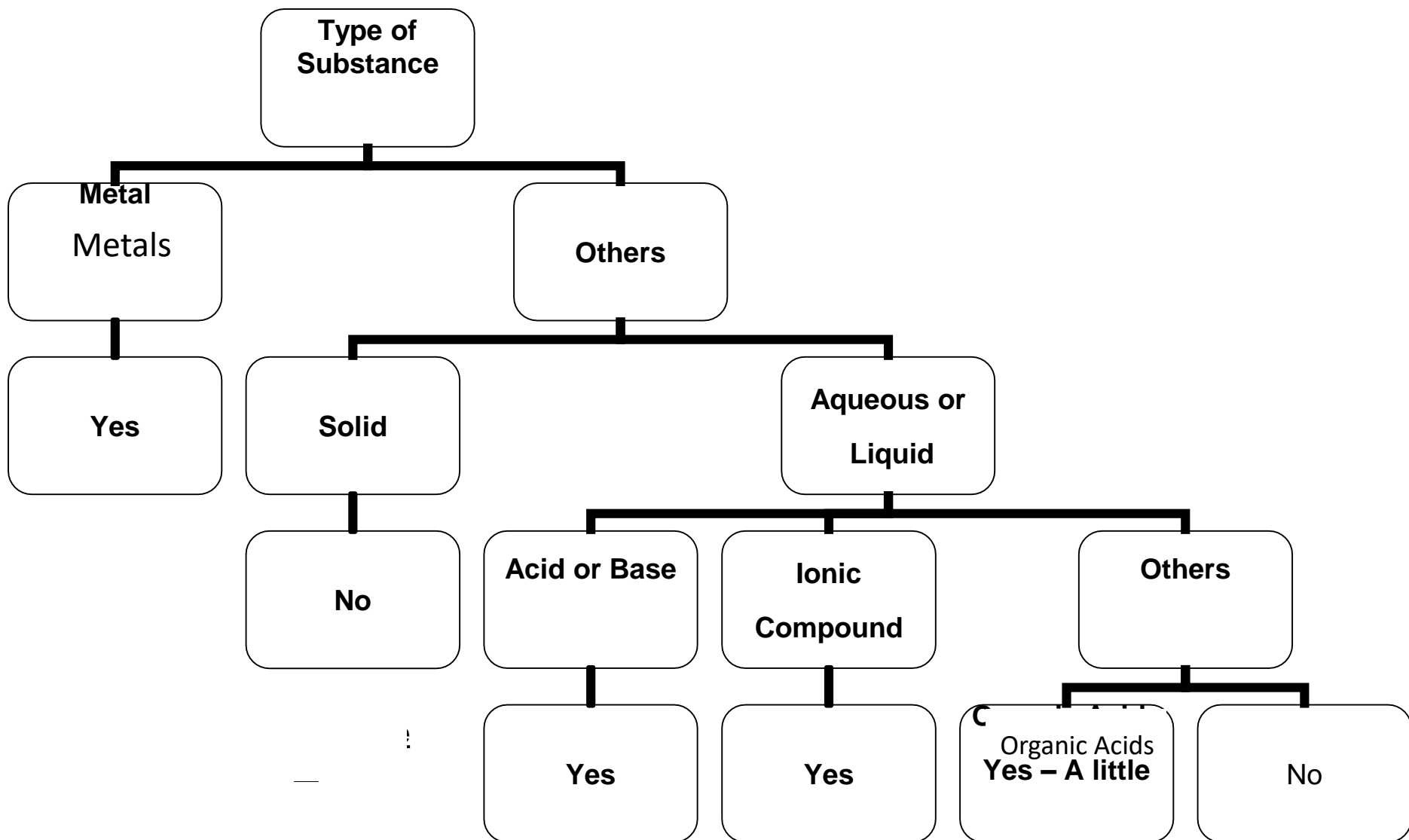
2) Through a current that uses an amp reader



What materials conducted electricity?

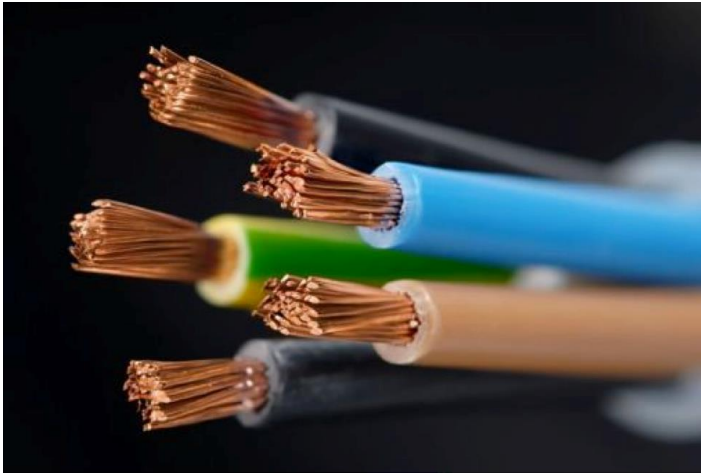


What materials conducted electricity?



A) Metals:

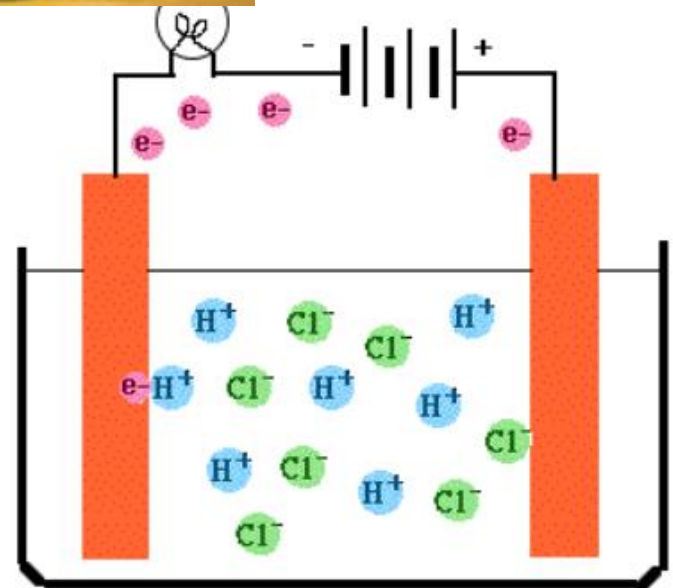
Conduct in solid or liquid forms, because they have **mobile electrons** that allow for the flow of charges.



B) Ionic Solution Compounds

In solution ions carry the charge

Water is needed to dissociate the ions

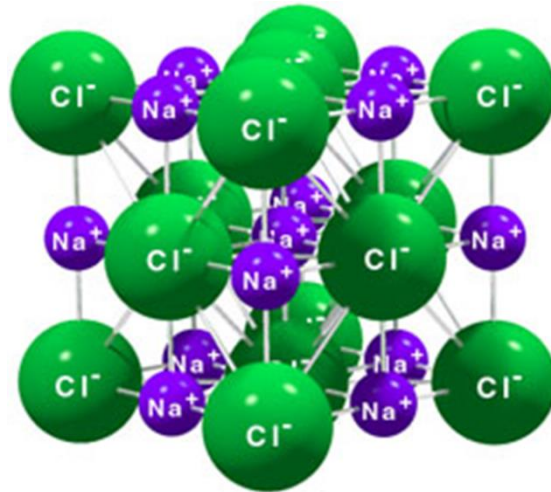


Ionic solids (ionic compounds)

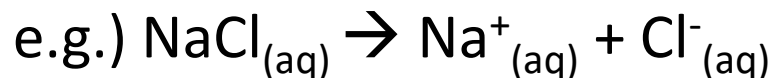
Definition: Solids which form a crystal structure made up of ions.

i.e. **metal** + non-metal

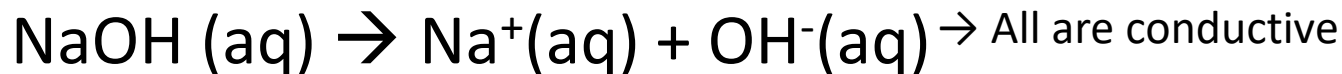
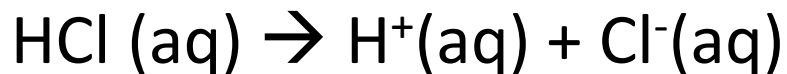
When Solid: The ions are “locked” due to electrostatic attractions. There is no **flow** of charges to produce a flow of electrical current.



When in aqueous solutions: The ions are dissociated by water, so there can be a flow of charge.



C) Inorganic Acids (“H-”) or Bases (“-OH”)

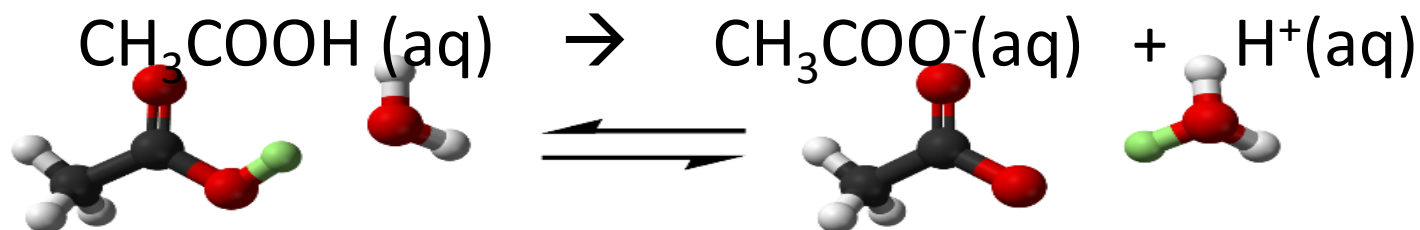


D) Organic acids (end in COOH)

- Carbon-based compounds that end in COOH are “organic” acids

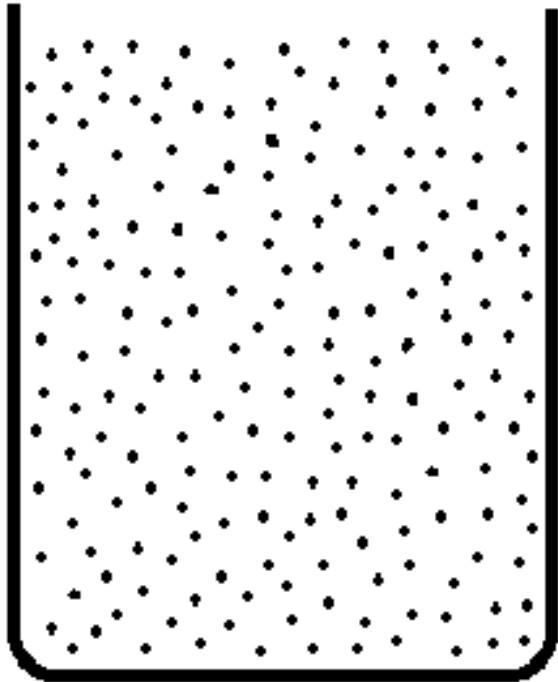
Ex. **CH₃COOH (acetic acid)**

- Only conducting in **aqueous solutions**, not as a pure liquid.
- Organic acids and water are polar molecules. The dipole-dipole interaction between the organic acid and water dissociates the polar –COOH group into H⁺ and –COO⁻.

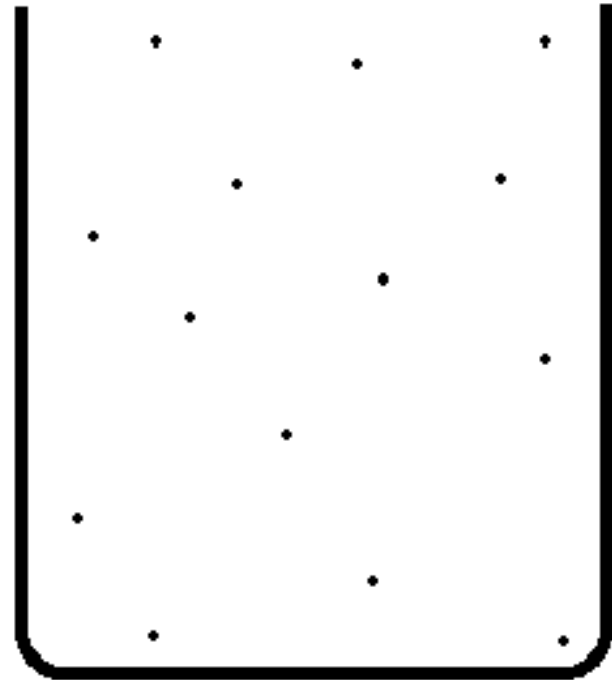


E) Concentration of Solution

The higher the concentration of a solution, the higher the conductivity



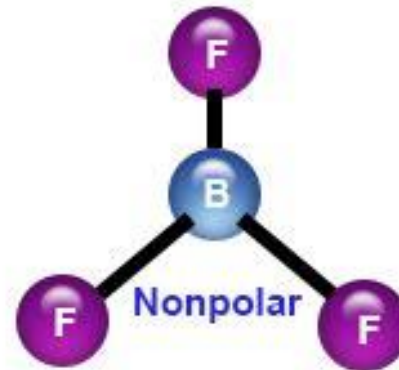
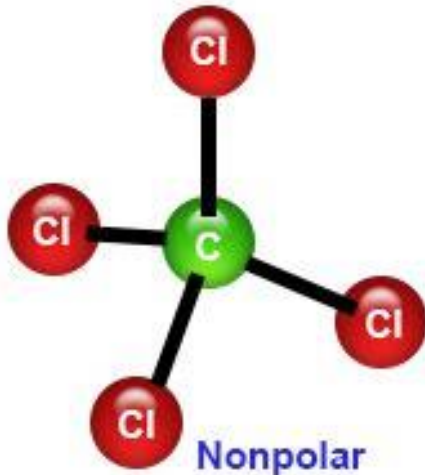
High concentration



Low concentration

Exit Ticket

- On a scratch piece of paper, answer:
- We see that polar compounds can create a current, but why can't non polar compounds produce a current?



Homework

- Pg. 194 #6 a,c,e,g,i, 7

