LESSON 16 – Electronegativity and Polarity

NAME:

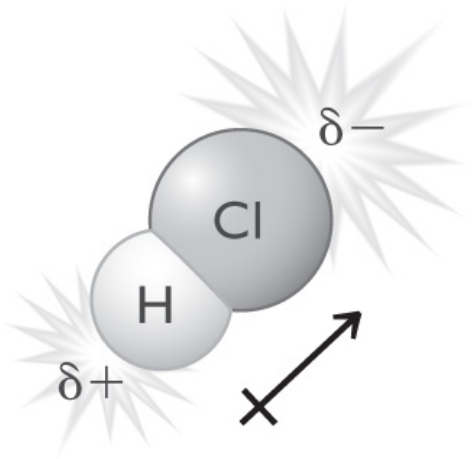
DATE:

- **<u>Essential question:</u>** What makes a molecule polar?

- **Covalent molecules** <u>share</u> electrons. These electrons are <u>not always shared equally</u> inside of the molecule.
- Some atoms **attract** the shared electrons in a covalent bond <u>more strongly</u> than others.
- This will cause the electrons to be **pulled more strongly towards** one of the atoms in the molecule**.**

Electronegativity

The tendency of an atom to attract the electrons that are involved in bonding

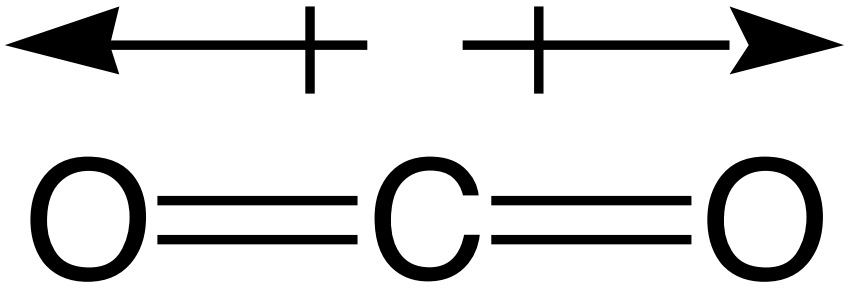


Hydrogen chloride, HCl
Electrons pulled in the direction of the dipole arrow.

- An atom that strongly attracts the shared electrons is considered **highly electronegative. This atom will have a partial negative charge on it.**

- The atom with **lower electronegativity** will end up with a **partial positive charge** on it. The result is a polar bond.

Dipole: A polar molecule or a polar bond between atoms. A crossed arrow is used to show the direction of a dipole. The crossed end of the arrow indicates the partial positive (+) end of the polar bond, and the arrow points in the direction of the partial negative (–) end.



Please draw this diagram in your notes

Summary

What makes a molecule polar?

- Polarity in a molecule is caused by **unequal sharing** of electrons between atoms.
- Electronegativity is the tendency of an atom to **attract shared electrons**.
- Anytime two atoms with different electronegativity values share electrons, there will be a **partial negative charge** on one atom and a **partial positive charge** on the other atom.

Bonds are classified as **nonpolar covalent**, **polar covalent**, and **ionic** as the difference in electronegativity between the two atoms in the bond increases.