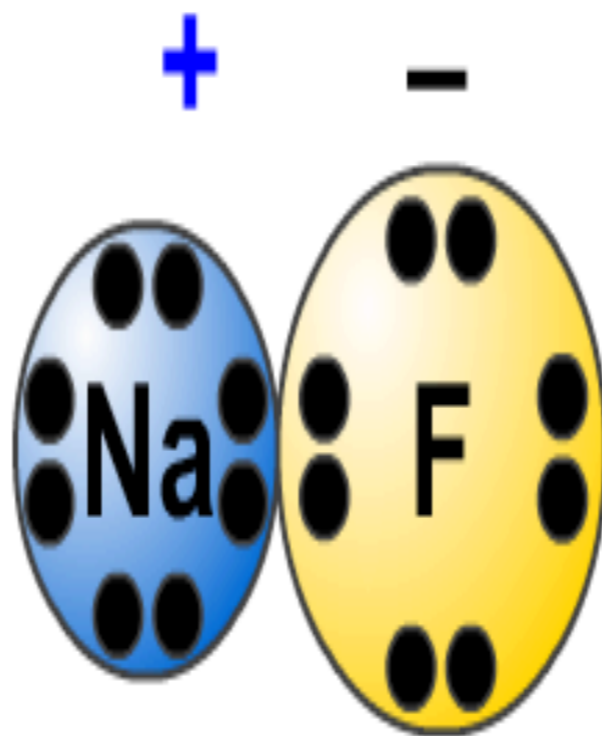


Polar and Non-Polar Bonds

Don't
write just
listen. :)

Review: Ionic Bonds

- * Ionic Bonds are formed from the electrostatic attraction of positive and negative ions

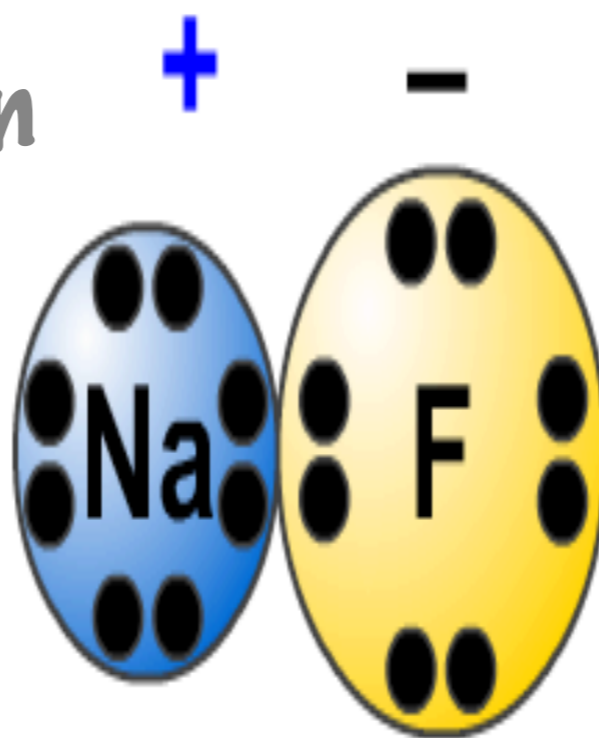


Don't write
just
listen. :)

Review: Ionic Bonds

- * Ionic Bonds are formed from the electrostatic attraction of positive and negative ions

An atom that can lose an electron to become a positively charged ion, called a cation

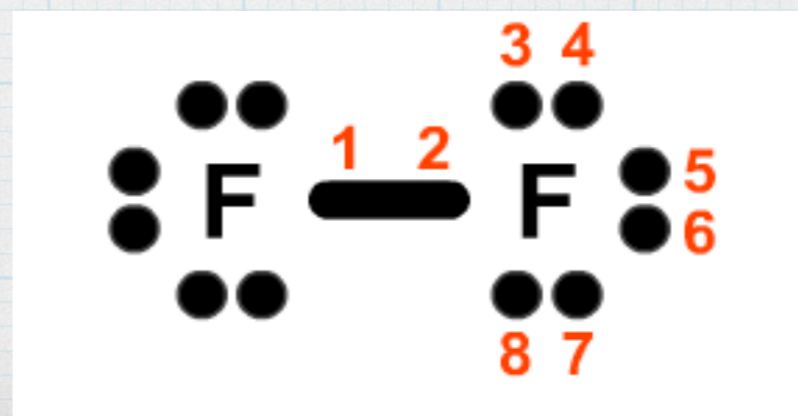
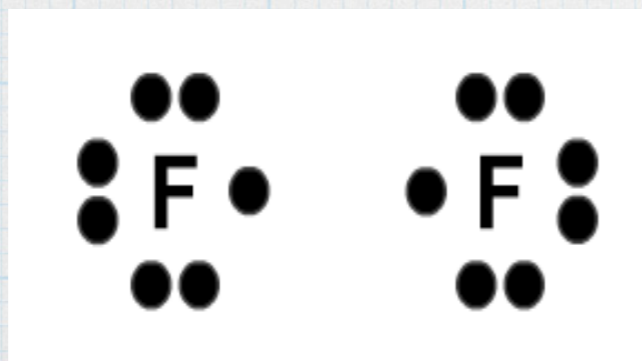
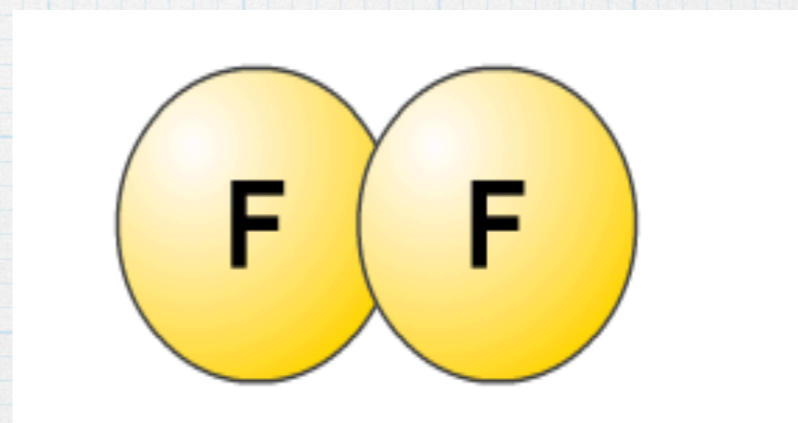
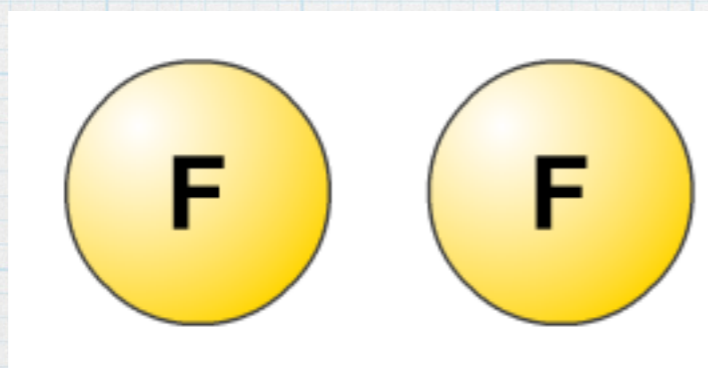


An atom can gain electrons to become a negatively charged ion, called an anion

Don't write
just
listen. :)

Review: Covalent Bonding

- * Covalent bonding occurs between two non-metals. Covalent bonding is different from ionic bonding because electrons are shared instead of transferred.



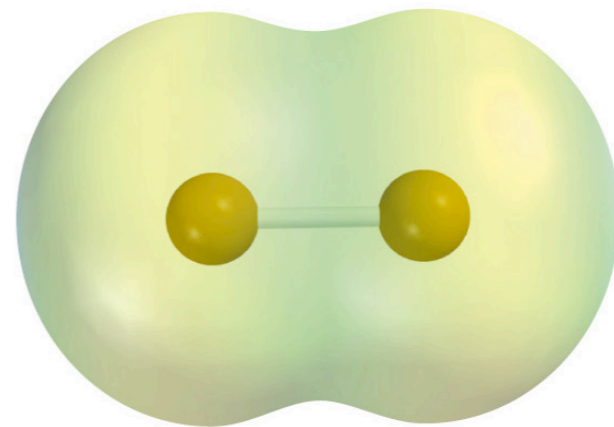
Electronegativity and Polarity

Non-polar Covalent Bond

- * When electrons are shared between 2 atoms, a covalent bond is formed.
- * If the atoms are identical (e.g. Cl_2) the electrons are shared equally (non-polar)

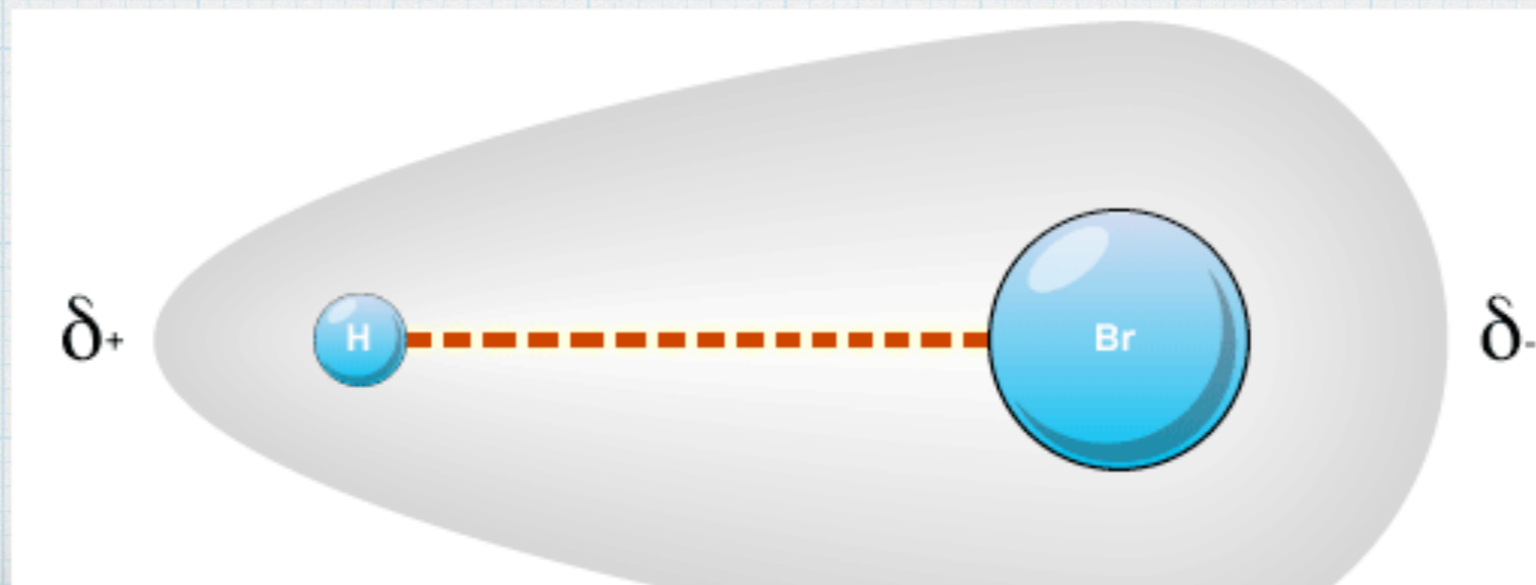


A nonpolar covalent bond

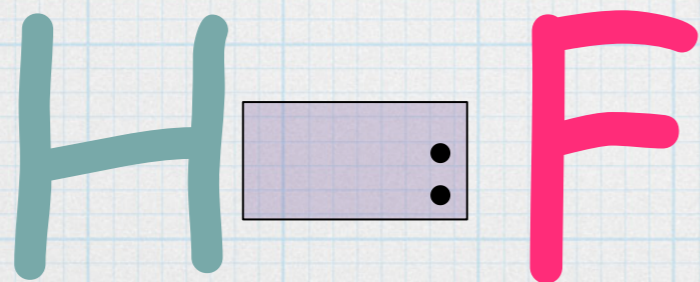


Polar Covalent Bond

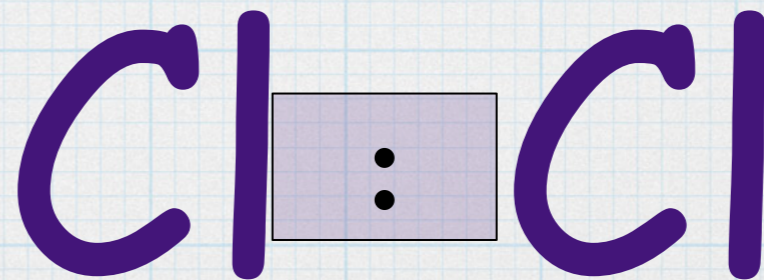
- * If the electrons are shared between 2 different atoms (e.g. HBr) the sharing is unequal
- * The bonding electrons spend more time near the more electronegative atom



- * This is not a complete transfer of an electron from hydrogen to fluorine; it is merely a drifting of electrons toward fluorine



Polar Covalent



Covalent

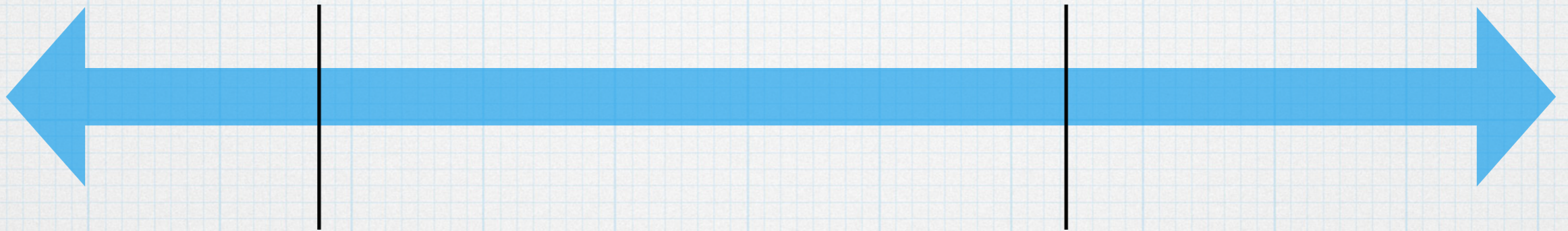
- * When a charge separation of this type is present, the molecule possesses an electric dipole, so called "dipole moment" and the bond is called a **POLAR COVALENT BOND**

Covalent

Ionic

0.4

1.7



Covalent

Ionic

0.4

1.7



Non-polar
Covalent

Polar
Covalent

Ionic

Covalent

Ionic

0.4

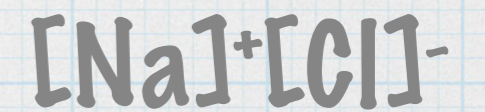
1.7



Non-polar
Covalent

Polar
Covalent

Ionic



Covalent

Ionic

0.4

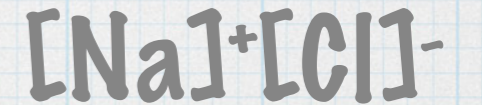
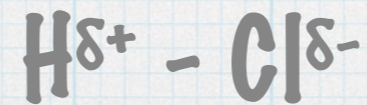
1.7



Non-polar
Covalent

Polar
Covalent

Ionic



Identical
Non-metals

Different
Non-metals

Metal and
Non-metals

Symmetry

You'll cover
this in grade
12 :)

- * Polarity also relies on symmetry:
- * If two dipoles are pulling in opposite directions they will cancel each other out

Example: CCl_4