CONCEPT: COVALENT BONDS

Bonds: an interaction between 2 atoms resulting from the ______ of electrons.
types of covalent bonds: 1) _____-Polar Covalent & 2) _____ Covalent.
The two types of covalent bonds exist due to differences in atoms' _____.
Electronegativity: a measure of an atom's attraction to (scaled from 0-4).

Electronegativity Increasing Electronegativity Н 2.1 Li F 4.0 Be С Ν 0 2.5 3.0 3.5 1.0 1.5 Na Mg Sc 1.3 Kr 3.0 Ca Ga Se Mn Cu Ge Br 1.5 1.6 2.0 0.8 1.5 1.6 1.9 1.9 1.9 1.0 1.6 1.8 1.6 2.4 Cd Sr Zr Rb Nb Мо Tc Ru Rh Pd Ag In Sn Sb Te Xe 8.0 1.2 1.4 2.2 1.7 1.8 1.9 2.1 Hf Cs Ba La Ta W Re Os Ir Pt Au Hg ΤI Pb Bi Po At 0.7 0.9 1.3 1.7 1.9 2.2 1.9 1.9 2.0 Fr Ra

PRACTICE: When two atoms share a pair of electrons, the bonding is referred to as:

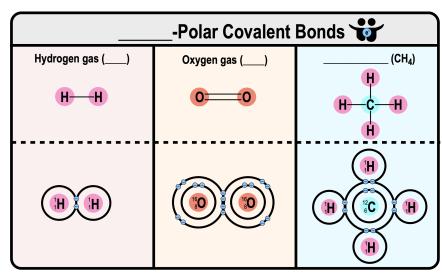
a) lonic.

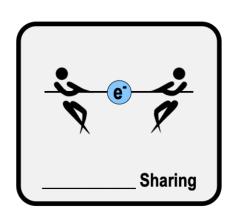
- b) Covalent.
- c) Unstable.
- d) Hydrogen.
- e) Polar.

Nonpolar Covalent Bonds

1) Nonpolar Covalent Bond: _____ sharing of electrons between atoms (due to similar electronegativities).

EXAMPLE: Nonpolar Covalent Bonds.





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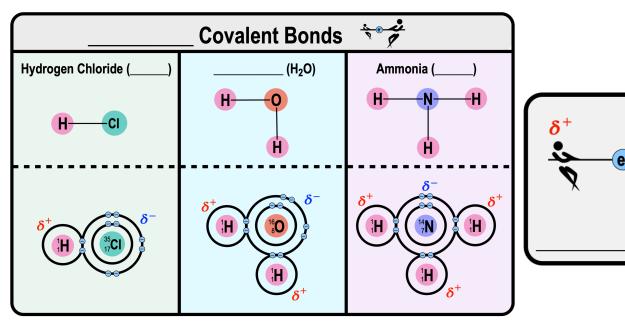
PRACTICE: What makes a covalent bond nonpolar?

- a) The bonded atoms share electrons unequally.
- b) The bonded atoms share electrons equally.
- c) The bonded atoms have equal electronegativities.
- d) The bonded atoms have unequal electronegativities.
- e) a and d only.
- f) b and c only.

Polar Covalent Bonds

2) Polar Covalent Bond: ______ sharing of electrons between atoms (due to different electronegativities).

 \Box Unequal distribution of electrons between atoms leads to ______(δ) *charges*.



Sharing

PRACTICE: If a covalent bond is polar:

- a) Electrons are not shared by atoms.
- b) Protons are shared by atoms.
- The bond is not important to living cells.
- d) One of the atoms has a partial negative charge.
- e) The bond is not a strong bond.

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PRACTICE: Bonds	between two	atoms that are ed	qually or similarly	electronegative are	
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- a) Polar covalent bonds.
- b) Nonpolar covalent bonds.
- c) Intermolecular bonds.
- d) None of the above.

PRACTICE: The hydrogens and oxygen of a water molecule are held together by _____ bonds.

- a) Electron.
- b) Hydrogen.
- c) Covalent.
- d) Osmotic.
- e) Non-covalent.
- f) None of the above.