

AP Chemistry
Thou Shalt Not Forget
Credit: Dan Reid

Bonding & Molecular Geometry

1. Carbon makes a total of 4 bonds in a compound.
 2. Bond angles: 4 domains = 109.5° 3 domains = 120° 2 domains = 180°
 3. Hybrid orbitals: 4 domains = sp^3 3 domains = sp^2 2 domains = sp
 4. Asymmetrical molecules = dipoles DO NOT cancel = polar molecule; symmetrical = dipoles cancel = nonpolar molecule
 5. Single bond = sigma double bond = sigma + pi bond triple bond = sigma + 2 pi bonds
 6. Lattice energy is the energy to break an ionic bond in a compound. Lattice energy increase as the ion's charge increases. Lattice energy decreases as the radii of the ions increase. (This can be deduced from Coulomb's Law.)
 7. Formal charge involves comparing the # of valence electrons an atom has to the # of electrons around it in the Lewis structure. (Remember to "split" the bonded electrons evenly between the atoms.)
 8. Obey the octet rule first when drawing the Lewis Dot Structure then use formal charge if necessary. Extra electrons can go on the larger central atom, and if you have too few electrons, start making some double or triple bonds.
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