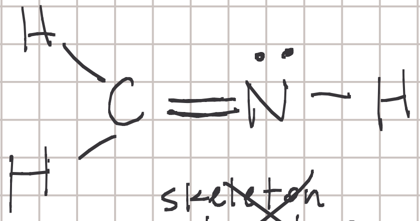
Ch 1

Note Title 8/24/2005

H_2CNH

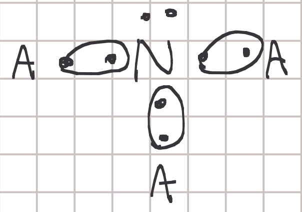
$2+4+5+1$

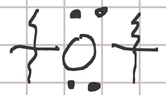
$= 12$ ve

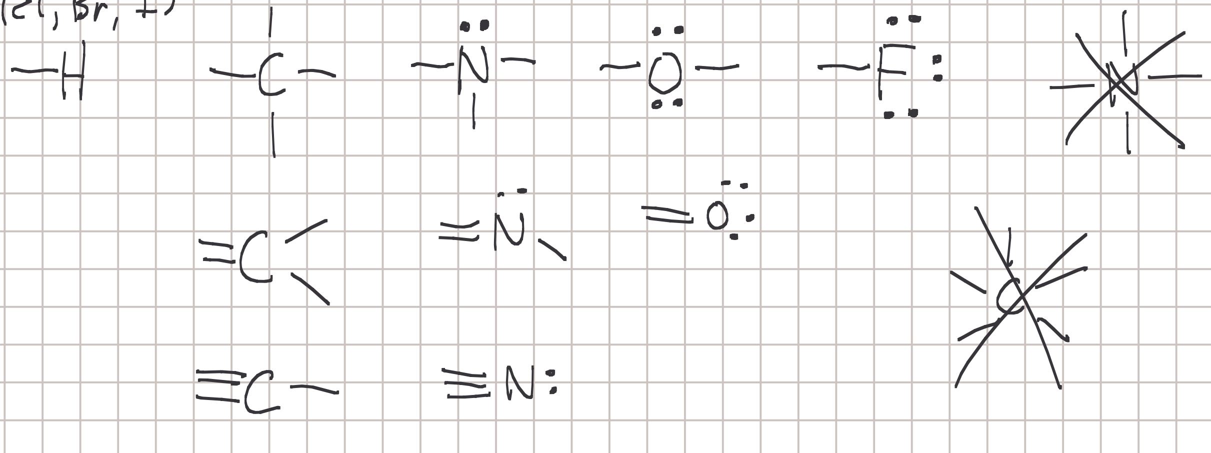


~~skeleton structure~~ Lewis structure

element	ve	valence (# cov bonds)	lone pairs
H	1	1	0
C	4	4	0
N	5	3	1
O	6	2	2
F all halides (cl, Br, I)	7	1	3



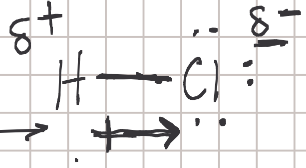




Ionic Bonds — Polar covalent bonds — Nonpolar Covalent bonds completely unequal "sharing"

partially unequal sharing

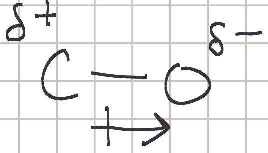
Completely equal sharing



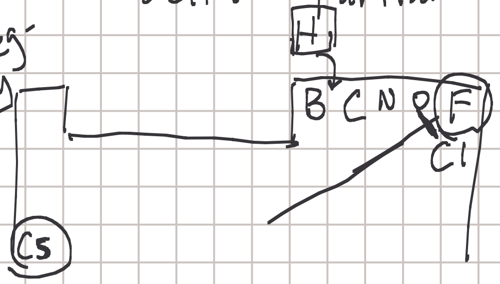
dipole arrow (polar cov bond)

Cl is more electronegative than H

shared equally (same element)



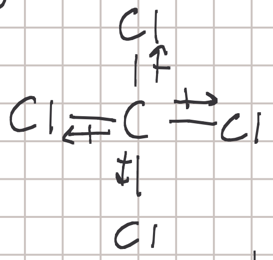
δ lowercase delta: "partial"



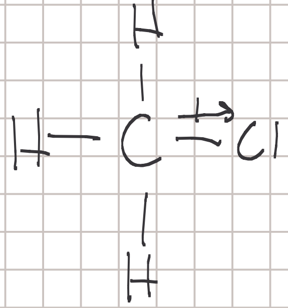
electronegativity

least e-neg

most e-neg



a nonpolar molecule



Polar molecule

C–H generally considered nonpolar bond

dipole moment

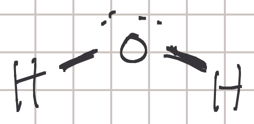
(net dipole arrow for whole molecule)

Formal charge

conceptual charge on atom that helps determine resonance contributors

$$FC = \underset{(\#\ ve)}{\text{group }\#} - \underset{e^-\ (\text{dots})}{\#\text{ nonbonding}} - \frac{1}{2}\text{ shared } e^-$$

H_2O

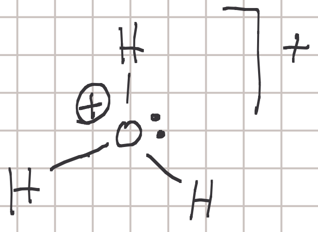


$H: 1-0-\frac{1}{2}(2)=0$

$O: 6-4-\frac{1}{2}(4)=0$

$\underbrace{H_3O^+}_{3+6-1}$

$=8\ ve$



$O: 6-2-\frac{1}{2}(6)$

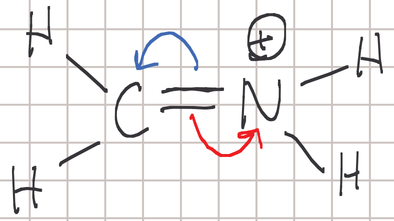
$= 6-2-3$

$=1$

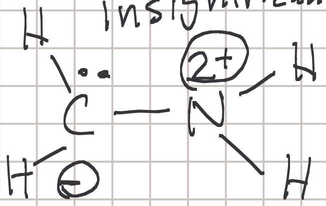
$H_2CNH_2^+$

$2+4+5+2-1$

$6 \quad 11 \quad 13 \quad \boxed{12}$



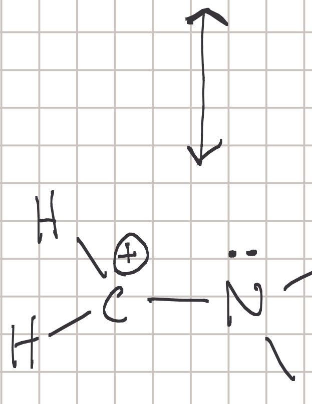
insignificant



N:

$5-0-4=\underline{\underline{1}}$

resonance structures



only different by position of electrons