

Write out the electron configuration for the following atoms and ions:

He

 $\text{H}^-$ 

Ne

 $\text{Ca}^{+2}$ 

Ar

 $\text{O}^{-2}$ 

Kr

 $\text{Br}^-$ 

Which noble gas is isoelectronic with each ion?

Draw the Lewis dot structures for the following compounds:

ionic

MgO

 $\text{CaCl}_2$  $\text{Na}_2\text{S}$ covalent

HCl

 $\text{H}_2\text{O}$  $\text{CH}_4$

### Some exceptions to the Octet Rule



### Type of bond? – I, PC, or NC



Using the EN trends to predict bond type

1	2											13	14	15	16	17	
1	H											5	6	7	8	9	
2	3	4											13	14	15	16	17
2	Li	Be											B	C	N	O	F
3	11	12	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3	Na	Mg											Al	Si	P	S	Cl
4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br
5	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I
6	55	56	*	72	73	74	75	76	77	78	79	80	81	82	83	84	85
6	Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At
7	87	88	**	104	105	106	107	108	109	110	111	112					
7	Fr	Ra		Rf	Db	Sg	Bh	Hs	Mt								

NO                      RbF                      FeS                      H<sub>2</sub>S

Modified from <http://www.cem.msu.edu/~djm/cem384/ptable.html>

Draw the Lewis dot structures

CO<sub>2</sub>                      NH<sub>2</sub><sup>-</sup>

H<sub>3</sub>O<sup>+</sup>                      CO

HCN                      H<sub>2</sub>CO

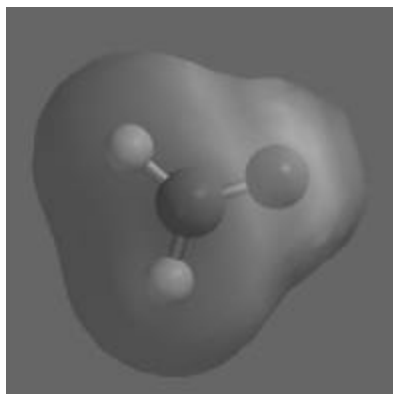
(C in center)

Show the direction of electron migration  
( $\overset{+}{\longrightarrow}$ ) in the following.

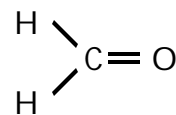
- C – H
- H – F
- C = O
- C – Cl
  
- Rank the bond polarity (1-most ... 3-least)

As-H      N-H      P-H

Here is the electrostatic potential map for  $\text{H}_2\text{CO}$ .



Show the electron migration on this planar molecule.



How is this molecule different than  $\text{BF}_3$ ?