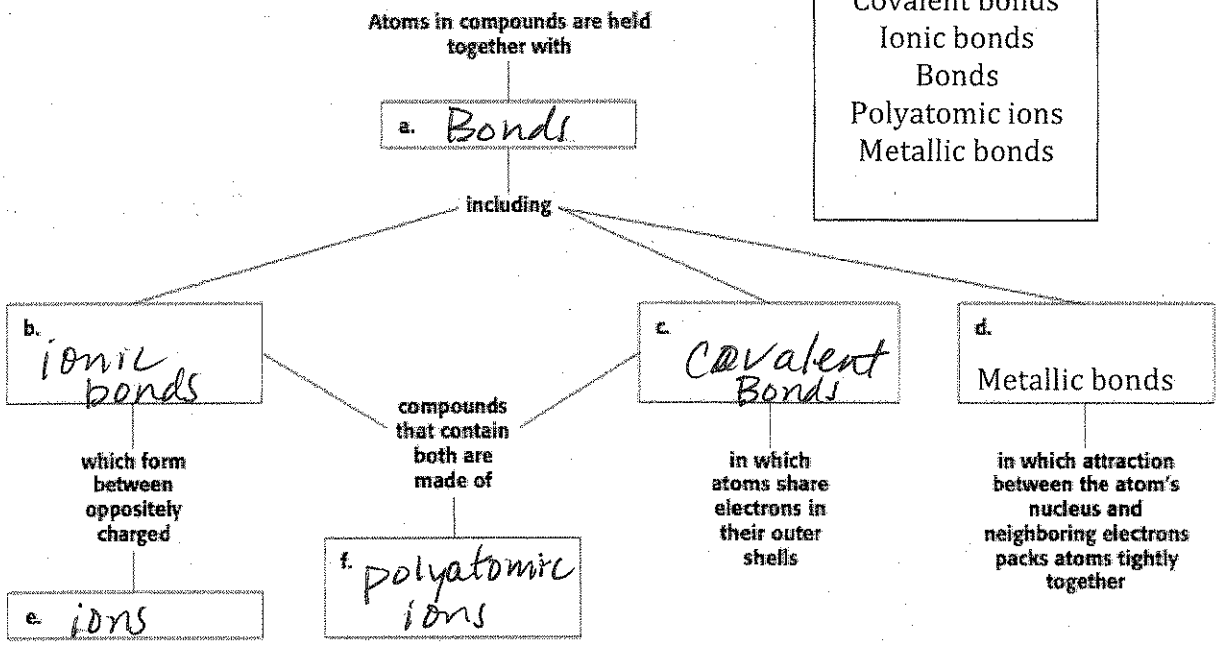
Name:_____

Compound Study Guide

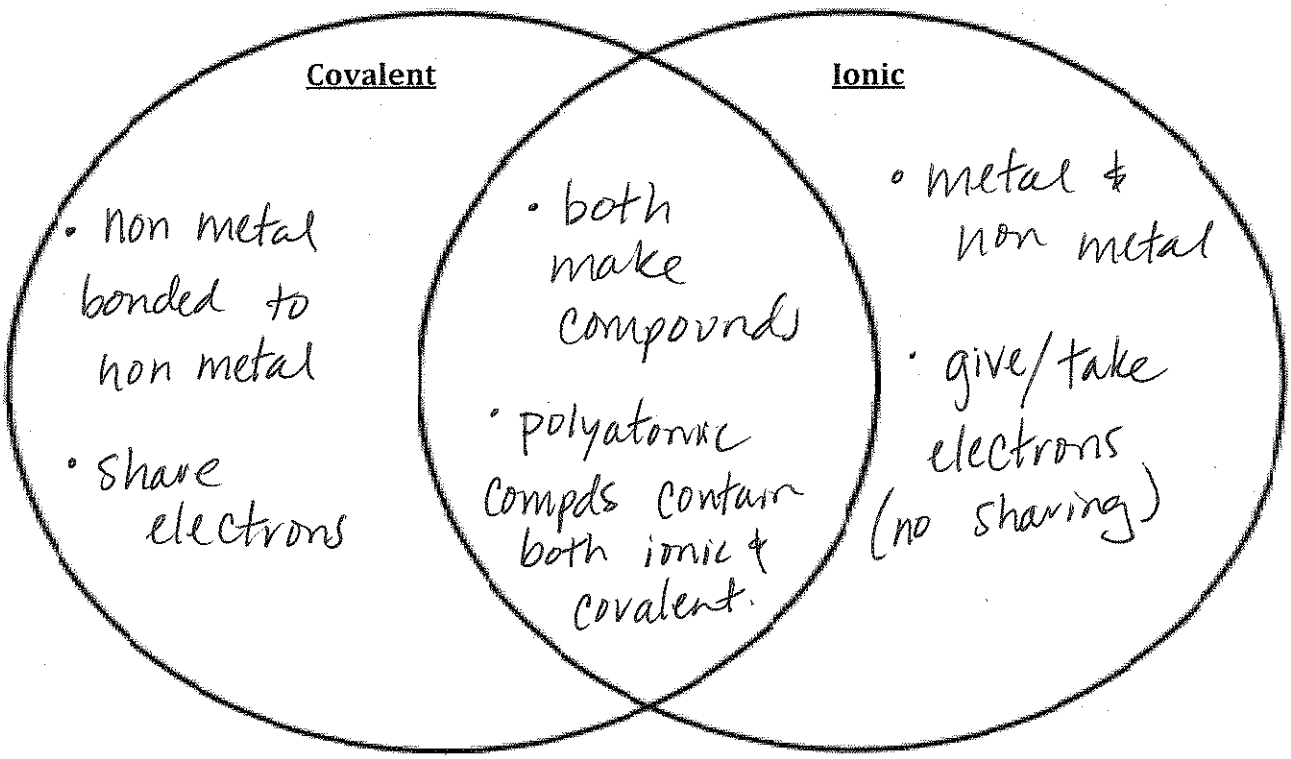
Word Box
Ions
Covalent bonds
Ionic bonds
Bonds
Polyatomic ions
Metallic bonds



Explain why it is more difficult to separate the elements of a compound than the substances in a mixture.

because the elements in a compound are connected by bonds

Compare and Contrast ionic and covalent bonds (Minimum 2 in each area)-Objective



When is it possible for a compound to have both ionic and covalent properties?

polyatomic ions

Explain the difference between iron (II) nitrate and iron (III) nitrate. What is the significance of the roman numerals?

+2

iron II = lost 2 e^- to become charge; iron III, lost 3 e^- to become +3 charge

Fill in the Spaces with the Greek prefixes (Spelling Counts)

# of atoms	Greek Prefix	# of atoms	Greek Prefix
1	mono	6	hexa
2	di	7	hepta
3	tri	8	octa
4	tetra	9	nona
5	penta	10	deca

Use the formulas provided to determine the number of atoms of each element. Remember to list <u>each element's symbol</u> and tell the <u>number of atoms</u> for each!
Ex) $6NaSO_4$ = Na = 6 S = 6 O = 24

1. $Zn(OH)_2$	Zn = 1 O = 2 H = 2
2. UF_4	U = 1 F = 4
3. $Sn(CrO_4)_2$	Sn = 1 Cr = 2 O = 8
4. $Pb(NO_3)_2$	Pb = 1 N = 2 O = 6
5. NH_4NO_3	N = 1 H = 4 N = 1 O = 3

Naming Chemical Compounds - objective

The following are a good mix of naming and formula writing problems to help you get some practice. I will expect that you know how to name both ionic and covalent compounds in your work.
Step #1 – What type of bond is this?
Step #2 – Is a transition metal involved?
Step #3 – What are the ion charges? Then flip the charges and make them subscripts.

Name the following chemical compounds:

1) $NaBr$ Ionic bond Sodium bromide
2) $Ca(C_2H_3O_2)_2$ polyatomic Calcium acetate
3) P_2O_5 Diphosphorous pentoxide ← covalent bond
4) $Ti(SO_4)_2$ Titanium IV Sulfate ← polyatomic
5) $FePO_4$ Iron(III) phosphate
6) K_3N Potassium nitride
7) SO_2 Sulfur dioxide
8) $CuOH$ Carbon(I) hydroxide
9) $Zn(NO_2)_2$ Zinc(II) ~~nitride~~ nitrite
10) V_2S_3 Vanadium(III) Sulfide

Write the formulas for the following chemical compounds:

11) silicon dioxide SiO_2
12) nickel (III) sulfide Ni_2S_3
13) manganese (II) phosphate $Mn_3(PO_4)_2$
14) silver acetate $Ag(C_2H_3O_2)$ ← will not be on test
15) diboron tetrabromide B_2Br_4
16) magnesium sulfate $MgSO_4$
17) potassium carbonate K_2CO_3
18) ammonium oxide $(NH_4)_2O$ ← will not be on test
19) tin (IV) selenide $SnSe_2$
20) carbon tetrachloride CCl_4

Fill in the blank space(spelling counts – use your periodic table and pg. 158)- **Objective**
Bond Type = ionic, covalent, or polyatomic
Don't forget roman numerals when needed (Transition metals)

Bond Type	Individual Ions	Compound Formula	Compound Name
1. Ionic	Mg^{+2} F^{-}	MgF_2	magnesium fluoride
2. polyatomic	Co^{+2} NO_2^{-1}	$Co(NO_2)_2$	Cobalt(II) nitrite
3. polyatomic	Zn^{+2} SO_4^{-2}	$ZnSO_4$	zinc sulfate
4. ionic	K^{+1} S^{-2}	K_2S	Potassium sulfide
5. ionic	Ca^{+2} Br^{-1}	$CaBr_2$	Calcium bromide
6. ionic	Pb^{+2} P^{-3}	Pb_3P_2	lead (II) phosphide
7. Covalent	----------	Cl_2O_7	Dichlorine heptoxide
8. ionic	Ni^{+2} Br^{-1}	$NiBr_2$	Nickel(II) bromide
9. Covalent	----------	P_4O_{10}	tetraphosphorous decaoxide
10. Covalent	----------	SF_6	sulfur hexafluoride
11. polyatomic	Sn^{+4} SO_4^{-2}	$Sn(SO_4)_2$	Tin(IV) sulfate
12. Covalent	----------	XeF_6	Xenon hexafluoride
13. Covalent	----------	Br_2O_7	dibromine heptaoxide
14 ionic	Fe^{+3} O^{-2}	Fe_2O_3	Iron III oxide
15. polyatomic	K^{+1} SO_3^{-2}	K_2SO_3	potassium sulfite