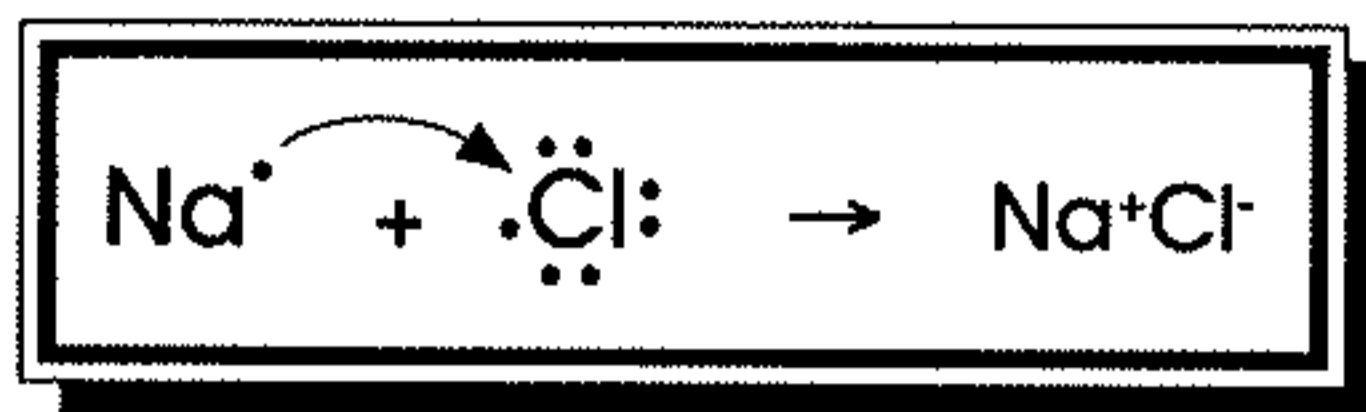


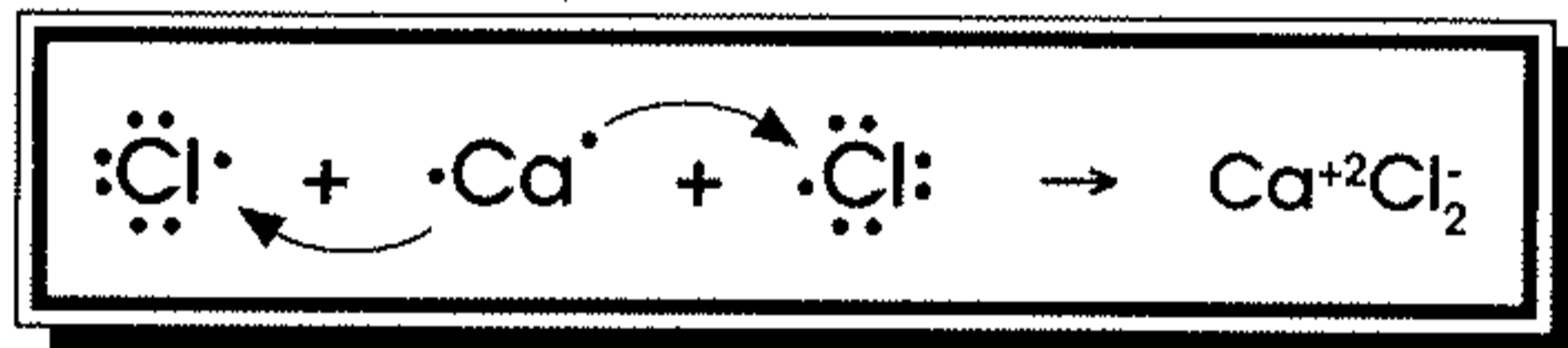
IONIC BONDING

Name _____

Ionic bonding occurs when a metal transfers one or more electrons to a nonmetal in an effort to attain a stable octet of electrons. For example, the transfer of an electron from sodium to chlorine can be depicted by a Lewis dot diagram.



Calcium would need two chlorine atoms to get rid of its two valence electrons.



Show the transfer of electrons in the following combinations.

1. K + F

2. Mg + I

3. Be + S

4. Na + O

5. Al + Br

COVALENT BONDING

Name _____

Covalent bonding occurs when two or more nonmetals share electrons, attempting to attain a stable octet of electrons at least part of the time. For example:



Show how covalent bonding occurs in each of the following pairs of atoms. Atoms may share one, two or three pairs of electrons.

1. H + H (H ₂)
2. F + F (F ₂)
3. O + O (O ₂)
4. N + N (N ₂)
5. C + O (CO ₂)
6. H + O (H ₂ O)

TYPES OF CHEMICAL BONDS

Name _____

Classify the following compounds as ionic (metal + nonmetal), covalent (nonmetal + nonmetal) or both (compound containing a polyatomic ion).

1. CaCl_2 _____

11. MgO _____

2. CO_2 _____

12. NH_4Cl _____

3. H_2O _____

13. HCl _____

4. BaSO_4 _____

14. KI _____

5. K_2O _____

15. NaOH _____

6. NaF _____

16. NO_2 _____

7. Na_2CO_3 _____

17. AlPO_4 _____

8. CH_4 _____

18. FeCl_3 _____

9. SO_3 _____

19. P_2O_5 _____

10. LiBr _____

20. N_2O_3 _____

WRITING FORMULAS (CRISS-CROSS METHOD)

Name _____

Write the formulas of the compounds produced from the listed ions.

	Cl^-	CO_3^{-2}	OH^-	SO_4^{-2}	PO_4^{-3}	NO_3^-
Na^+						
NH_4^+						
K^+						
Ca^{+2}						
Mg^{+2}						
Zn^{+2}						
Fe^{+3}						
Al^{+3}						
Co^{+3}						
Fe^{+2}						
H^+						

NAMING IONIC COMPOUNDS

Name _____

Name the following compounds using the Stock Naming System.

1. CaCO_3 _____
2. KCl _____
3. FeSO_4 _____
4. LiBr _____
5. MgCl_2 _____
6. FeCl_3 _____
7. $\text{Zn}_3(\text{PO}_4)_2$ _____
8. NH_4NO_3 _____
9. $\text{Al}(\text{OH})_3$ _____
10. $\text{CuC}_2\text{H}_3\text{O}_2$ _____
11. PbSO_3 _____
12. NaClO_3 _____
13. CaC_2O_4 _____
14. Fe_2O_3 _____
15. $(\text{NH}_4)_3\text{PO}_4$ _____
16. NaHSO_4 _____
17. Hg_2Cl_2 _____
18. $\text{Mg}(\text{NO}_2)_2$ _____
19. CuSO_4 _____
20. NaHCO_3 _____
21. NiBr_3 _____
22. $\text{Be}(\text{NO}_3)_2$ _____
23. ZnSO_4 _____
24. AuCl_3 _____
25. KMnO_4 _____

NAMING MOLECULAR COMPOUNDS

Name _____

Name the following covalent compounds.

1. CO_2 _____
2. CO _____
3. SO_2 _____
4. SO_3 _____
5. N_2O _____
6. NO _____
7. N_2O_3 _____
8. NO_2 _____
9. N_2O_4 _____
10. N_2O_5 _____
11. PCl_3 _____
12. PCl_5 _____
13. NH_3 _____
14. SCl_6 _____
15. P_2O_5 _____
16. CCl_4 _____
17. SiO_2 _____
18. CS_2 _____
19. OF_2 _____
20. PBr_3 _____

WRITING FORMULAS FROM NAMES

Name _____

Write the formulas of the following compounds.

1. ammonium phosphate _____
2. iron (II) oxide _____
3. iron (III) oxide _____
4. carbon monoxide _____
5. calcium chloride _____
6. potassium nitrate _____
7. magnesium hydroxide _____
8. aluminum sulfate _____
9. copper (II) sulfate _____
10. lead (IV) chromate _____
11. diphosphorus pentoxide _____
12. potassium permanganate _____
13. sodium hydrogen carbonate _____
14. zinc nitrate _____
15. aluminum sulfite _____