

IONIC BONDING

Name _____

Ionic bonding occurs when a metal transfers one or more electrons to a nonmetal in 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.



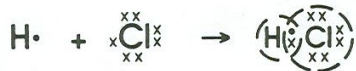
Show the transfer of electrons in the following combinations.



COVALENT BONDING

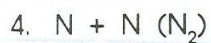
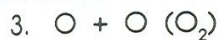
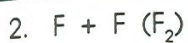
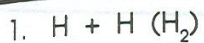
Name _____

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:



Note that hydrogen is content with 2, not 8, electrons.

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



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 _____

SHAPES OF MOLECULES

Name _____

Using VSEPR Theory, name and sketch the shape of the following molecules.

1. N_2	7. HF
2. H_2O	8. CH_3OH
3. CO_2	9. H_2S
4. NH_3	10. I_2
5. CH_4	11. $CHCl_3$
6. SO_3	12. O_2

POLARITY OF MOLECULES

Name _____

Determine whether the following molecules are polar or nonpolar.

1. N_2	7. HF
2. H_2O	8. CH_3OH
3. CO_2	9. H_2S
4. NH_3	10. I_2
5. CH_4	11. CHCl_3
6. SO_3	12. O_2