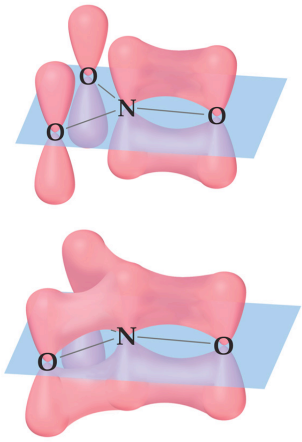
Hey, Baby. You and I Have a Bond…Ch. 8

C. Structures for polyatomic ions:

1. When drawing a Lewis structure of an ion, follow all the steps above and then:
   a. A charge means that you that number of electrons.
   b. A charge means that you that number of electrons.
   c. Place
   d. Place the
2. Ex: NH_4^+ CO_3^{2-} NO_3^-

D. Structures:

1. For some molecules,
2. These molecules show
3. The of all the resonance structures.
4. Draw a
5. Example: NO_3^-



E. Octet Exceptions:

1.
2.
3.

V. Molecular Shapes (see handout)

A. Lewis structures can be used to predict shapes.

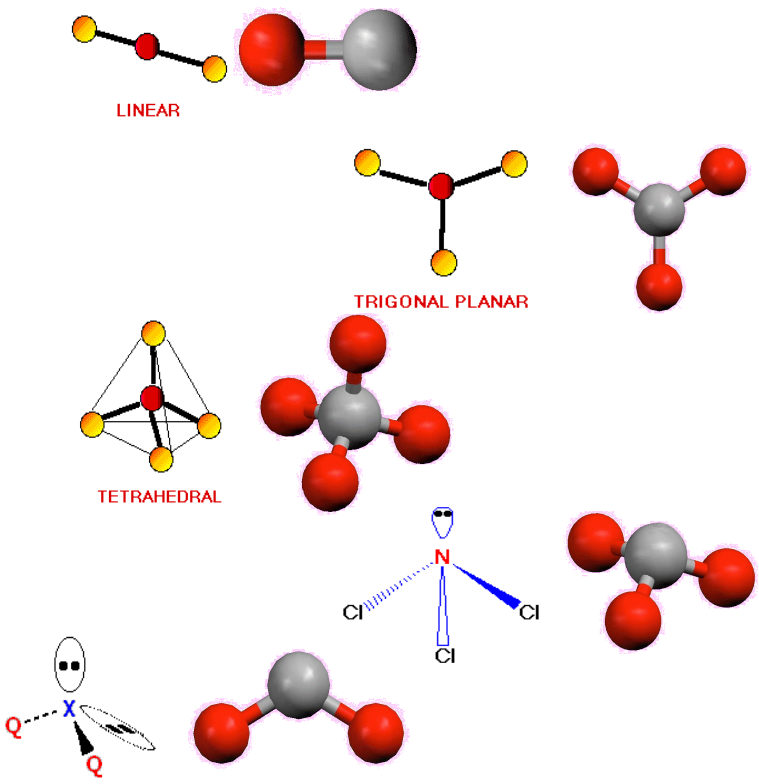
B. The shape of molecules is described using models

C.

1.

D. We Will Study Five Shapes

1.
   a. Bond angle =
   b. Examples: O_2, HCl, CO_2
2.
   a. Bond angle =
   b. Example: BCl_3, CO_3^{2-}
3.
   a. Bond angle =
   b. Examples: CH_4, CF_4
4.
   a. Bond angle =
   b. Examples: NH_3, PCl_3
5.
   a. Bond angle =
   b. Example: H_2O.



E. Examples:

What is the shape of PI_3?

What is the shape of HCN?

VI. Polarity

A. A molecule is

B. Determining Polarity:

1. The determine whether the molecule is

2.

3.

4.

C. Examples:

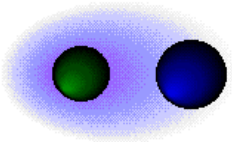
Water

Formaldehyde (H_2CO)

CH_4

CH_3Cl

SO_3



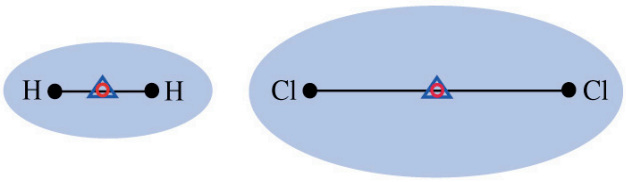
VII. Types of Covalent Bonds

A. Electronegativity (EN) and Covalent Bonding

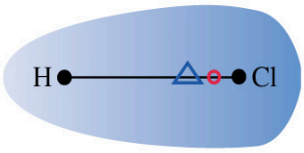
1. Elements have different EN's.
2. Ex: Cl_2, O_2.
3.
   a. Dipoles are bonds with Designated with "δ".
   b. The ( ).

B. Predicting Bond Types – (p. 263)

1.
2.
3.



(a) Nonpolar covalent bonds



(b) Polar covalent bond

● = Atomic nucleus
△ = Center of positive charge
o = Center of negative charge

VIII. Properties of Covalent Compounds

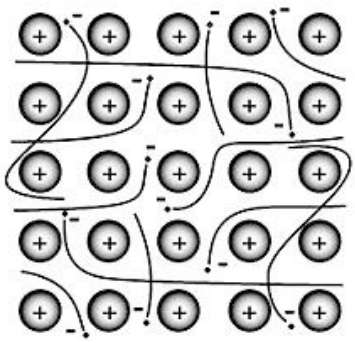
A. Between molecules, the forces are

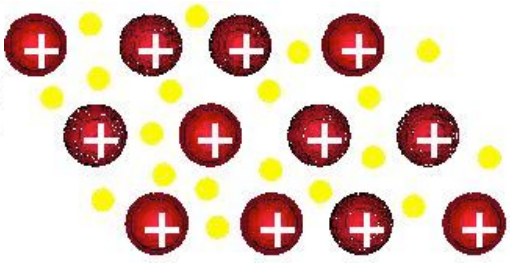
1. Because of this, they are
2. They also have

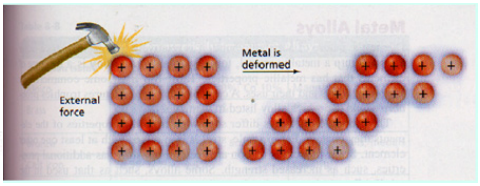
B. Electrons are
   1. Thus, they

IX. Metallic Bonding

A. Metals have
B. When metals are bonded, they don't want their electrons.
C. Their electrons thus flow like a
D. This gives rise to the fact that metals are







X. Bond Energetics

A. Energy changes in bonds
   1. When a bond is , energy is
   2. When a bond is , energy is