1. Define electronegativity
   - The ability of an atom to attract electrons

2. How does electronegativity vary as the atomic number of an element increases within the same period of the periodic table?
   - Increases from left to right and decreases from top to bottom

3. How is the strength of a bond between two elements in a molecule related to their electronegativities?
   - The greater the electronegativity difference between the atoms the stronger the bond.

4. What is the difference between an ionic and a covalent bond?
   Ionic – metal/nonmetal, transfer of e-, strongest bonds
   Covalent – 2 nonmetals, sharing of e-, no charges

5. Referring to the table of electronegativities, classify each of the following bonds as either ionic (I), covalent (C), or polar covalent (PC):
   - I a. Al-O
   - PC d. Bi-O
   - I g. Na-S
   - PC j. Ti-Br
   - PC b. Al-S
   - PC e. C-Cl
   - PC h. P-O
   - I k. Ca-F
   - PC l. Ba-S

6. Underline the atom in each of the following pairs that has the lower electronegativity.
   a. Li Na  b. Cs Rb  c. Cs Ba  d. Cl Br  e. Fe Ni  f. S Cl

7. Use Table 12-1 to estimate the percent of ionic character in the following bonds.
   a. Pb-S 10%  b. Ag-Cl 30%  c. Na-Br 60%
   d. C-N 8%   e. Cu-I 10%   f. H-O 40%
   g. Ni-O 50%  h. B-N 23%  i. Ca-Cl 63%
   j. Fe-Si 0%  k. Na-F 92%  l. Zn-P 8%

8. Use arrows to indicate the atom that carries the negative dipole.

9. Arrange the following compounds in order if increasing ionic character of their bonds:
   LiF, LiBr, KCl, KI.  KI=1.7, LiBr=1.8, KCl=2.2, LiF=3.0
10. List four general characteristics of compounds that have ionic bonds.
   - See ? #4

11. List three general characteristics of compounds that formed entirely by covalent bonds.
   - See ? #4